Exhibit #1

Volume 1

Pages 1 - 174

UNITED STATES DISTRICT COURT

NORTHERN DISTRICT OF CALIFORNIA

Before The Honorable Richard Seeborg, Judge

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ANIBAL RODRIGUEZ, et al.,        )
individually and on behalf of    )
all others similarly situated,   )
                                 )
          Plaintiffs,            )
                                 )
  VS.                            )   NO. 3:20-CV-04688 RS
                                 )
GOOGLE LLC,                      )
                                 )
          Defendant.             )
_____ )
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San Francisco, California
Monday, August 18, 2025

TRANSCRIPT OF JURY TRIAL PROCEEDINGS

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25   **Steve Ganem, Google**

1   **I N D E X**

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1   **THE COURT:** Okay. Are we ready to bring the jury out?

2   **MR. DAVID BOIES:** Yes, Your Honor.

3   **MR. HUR:** Yes, Your Honor.

4   **THE COURT:** All right.

5   (Proceedings were heard in the presence of the jury.)

6   **THE COURT:** The jury is present.

7   Mr. Hur, your opening statement.

8   **MR. HUR:** Thank you, Your Honor.

9   **OPENING STATEMENT**

10   **MR. HUR:** Good morning. Once again, my name is

11   Ben Hur, and I represent Google in this case.

12   There's one thing that I agree with with plaintiffs'

13   counsel, and that is I want to thank you for your service as

14   jurors.

15   As the judge explained to you, your role is fundamental to

16   our democracy because at the heart of our judicial system is

17   the idea that all of us are equal under the law. And here in

18   this courtroom, over the next few weeks, you are the people

19   empowered to uphold that ideal; and in order to do that, you

20   really need to keep an open mind. The judge said it. You

21   heard it from plaintiffs' counsel as well. And make sure you

22   hear both sides of the story before you make a decision.

23   And the reason that's important is because there's a lot

24   of information you haven't heard about this case so far. For

25   example, you did not hear plaintiffs' counsel utter the words

1   "Google Analytics for Firebase." That is the product that

2   collects data, that Google uses to collect data from

3   third-party apps. Google Analytics for Firebase is the product

4   that is at issue in this case, and you didn't hear the

5   plaintiffs' counsel mention it even once.

6   You didn't hear him explain that it is a product that app

7   developers use to help them understand what their users are

8   doing on the app so that they can make their apps better. You

9   didn't hear that app developers download this product so that

10   they can analyze the data that their users are providing.

11   You also didn't hear that when an app developer signs up

12   for Google Analytics for Firebase, they have an agreement with

13   Google Analytics for Firebase, and that agreement says that

14   they must disclose to every one of their users that the app is

15   using Google Analytics for Firebase and that Google Analytics

16   for Firebase is collecting data.

17   Brooklyn, can you please put up Slide 5.

18   You saw this in the plaintiffs' presentation. Every

19   single one of these apps and every single one that downloads

20   Google Analytics for Firebase agrees that it will tell their

21   own users that their app uses Google Analytics for Firebase to

22   collect and process data. Google Analytics is a business tool

23   used by apps to help them analyze their data.

24   You can take that down. Thank you.

25   Now, you also didn't hear plaintiffs talk about many of

1   the disclosures in this case that Google makes to its own

2   users. You didn't see any disclosures about Google Analytics.

3   You didn't see any disclosures about Web & App Activity or

4   supplemental Web & App Activity. You heard the plaintiffs'

5   counsel talk about it, but he didn't even show you what Google

6   says about it. I mean, he did show you this.

7   If you can put up Slide 7, please.

8   7, please. Oh, I'm sorry. 25.

9   He did show you this one. And what I want to point you

10   to -- he pointed you to that box on the far right, "Activity

11   controls," but he didn't actually show you what the activity

12   controls screen says.

13   Here's what it says. At the very top, it talks about --

14   it says "Google Account" and it says "Activity controls." This

15   is the screen where Google discloses the Web & App Activity

16   setting and the supplemental Web & App Activity setting. Okay.

17   This is sWAA.

18   And the plaintiffs' counsel made it sound like Google

19   doesn't tell you very much about what it saves and how it saves

20   it. Look at the very top of this screen.

21   [As read]:

22   "The data saved in your account helps give you

23   more personalized experiences across all Google

24   services. Choose which settings will save data in

25   your Google Account."

1   [As read]:

2   "Safer with Google."

3   The next line [as read]:

4   "You control what data gets saved to your

5   account."

6   Now, it's true that in the middle of this screen, Google

7   doesn't also say here "Web & App Activity saves data to your

8   Google Account." It's true. But Google does say it three

9   times on the same screen at the very top.

10   And it's true that for the subsetting sWAA -- this is

11   sWAA. I'm sorry. My handwriting is terrible. Can you see

12   that? That says sWAA.

13   The subsetting sWAA, it's true it doesn't say "in your

14   Google Account" at the end; but, again, Google tells users on

15   the very same screen three times that what sWAA controls is

16   whether data is saved to your Google Account.

17   This is the toggle the plaintiffs' lawyers are talking

18   about, and they didn't even bother to show it to you.

19   Now, you may be wondering, why does it matter whether data

20   is saved to a user's Google Account or not? And I'm going to

21   help explain that to you.

22   As I mentioned, the data in this case, the data that's at

23   issue, the data relating to activity on third-party mobile

24   apps, is by a product called Google Analytics for Firebase.

25   Now, throughout this trial you may hear the phrase

1   "Google Analytics for Firebase." You may hear

2   "Google Analytics." You may hear "Firebase." But they're all

3   referring to the same product: Google Analytics for Firebase.

4   In addition, there's an integration to Google Analytics

5   for Firebase called Google AdMob and that's an integration that

6   helps apps measure app performance.

7   Google Analytics is a business product. It is directed

8   towards apps.

9   The Google Account, as we just talked about, is a

10   consumer-facing product that is directed towards individuals.

11   So you may be familiar with the Google Account because, if you

12   sign up for Gmail, you'd get a Google Account. If you get an

13   Android phone and set it up, you set up a Google Account. This

14   is a consumer-facing product, not a business-facing product.

15   You didn't hear this mentioned at all. This case is about

16   non-personal data, data that isn't tied to any user's identity.

17   It is de-identified data. What is non-personal data? It's

18   data that contains no name, email address, home address, or

19   billing information. It's not tied to personal identity, and

20   it is not used for personal advertising.

21   What about personal data? Personal data is data that's

22   tied to a person's name, their email address, their home

23   address, or their billing information.

24   Now, why is this important? Because Google Analytics for

25   Firebase, again, the product at issue in this case, collects

1   non-personal data, data that isn't tied to a person's identity,

2   whereas the Google Account is for activity that is tied to a

3   person's name, email address, and the like.

4   And one of the questions that the plaintiffs' counsel

5   asked you to consider is: What does this sWAA setting actually

6   do? This is the setting. What does it actually do?

7   When sWAA is on, non-personal data on the left can be

8   combined with personal data on the right. The Google Analytics

9   for Firebase data can be combined with personal data. But when

10 sWAA is off, the non-personal data on the left cannot be

11 combined with the personal data on the right.

12   So what sWAA does is ensure that the non-personal data

13 collected by Google Analytics cannot be combined with personal

14 data in a user's Google Account. That is what the toggle is

15 meant to do, and that's what Google disclosed to its users.

16   Now, over the course of the next 20, 25 minutes or so, I'm

17 going to cover three things. I'm going to first cover how

18 Google Analytics makes apps better; and then I'm going to cover

19 how Google Analytics adheres to the sWAA setting, how

20 Google Analytics is consistent and operates in the way that it

21 tells users; and, finally, I'm going to tell you about how

22 Google Analytics is itself disclosed to its users.

23   So let's learn a little bit more about Google Analytics.

24 The people who are going to tell you about Google Analytics are

25 two primary witnesses. First, Steve Ganem, who's the director

1   Do you see that?

2   A.   Yes, I do.

3   Q.   And then what he cites -- and I wish we had it. Oh, here

4   we have it.

5   The wording he focuses on is the wording we see right up

6   here, which was talked about this morning.

7   Were you in opening statement?

8   A.   No, I was not.

9   Q.   Okay. There was discussion about a disclosure that the

10   data saved in your account helps give you, the Google user,

11   more personalized experiences across all Google services and

12   choose which settings you will save in your Google Account. Do

13   you see that?

14   A.   Yes, I do.

15   Q.   Mr. Ruemmler takes that exact language, and what he says

16   is [as read]:

17   "I see how the wording here is very deceptive."

18   He goes on to say [as read]:

19   "The problem is it ... 'your Google Account'

20   means your data, not Google's."

21   Those were his words back in July 25th of 2019; correct?

22   A.   Yes.

23   Q.   And he goes on to say in that next sentence [as read]:

24   "If I choose not to store data in my account,

25   then Google should not have access to the data either

1   as the data should not be in the account."

2   Those were his words; correct?

3 **A.**   Correct.

4 **Q.**   And so Mr. Ruemmler is saying, way back when "'your

5 Google Account' means your data," and he is referring "your"

6 being the user data; correct?

7 **A.**   That's right.

8 **Q.**   The data of all the Google users; fair?

9 **A.**   Correct. Like my search history is my search history.

10 **Q.**   Mr. Ruemmler goes on to say [as read]:

11   "What you" --

12   And the word "you" is referring to you, sir, Mr. Monsees?

13 **A.**   I believe so.

14 **Q.**   Okay.

15   [As read]:

16   "What you are stating is WAA (or any of the

17   other controls) does not necessarily control what is

18   stored by Google, but simply what the user has access

19   to."

20   Do you see that?

21 **A.**   Yes, I do.

22 **Q.**   And let's talk about what the user has access to.

23   We can agree that when Google takes WAA off data from a

24 user, the user can't go anywhere online anywhere in life to go

25 see what Google has, can they?

1   A.   Correct.   If the data is de-identified, we wouldn't know

2   who to show it to because there's no ID associated with it.   We

3   wouldn't know it's your data or my data.

4   Q.   So the answer is a "yes" on that one; correct?

5   A.   Yes.

6   Q.   Okay.   And there's no way for that user -- Google has the

7   data, just to be sure about it.   So user has -- collects the

8   user's WAA-off data.   As Mr. Ruemmler said, it's stored by

9   Google; correct?

10 A.   That's correct.

11 Q.   What he said was accurate then and accurate now; correct?

12 A.   I think it might be a little bit more complicated.

13 Q.   Let me -- can we just focus?   Because you're going to have

14 a chance with your counsel to say basically anything you want.

15   But my question is simply this: When WAA was off, as

16 Mr. Ruemmler says, Google is still storing the user's WAA-off

17 information; fair?

18 A.   Google would still store some WAA-off information.   I

19 mentioned before not everything's the same.

20 Q.   And Google does it today, as we sit here today; right?

21 A.   And Google does that today, but --

22 Q.   Okay.

23 A.   -- as I mentioned, that WAA-off data is never going to be

24 saved against your account, which I believe is what

25 Mr. Ruemmler and I are talking about in this email.

1   Q.   We're going to get into that too.

2   A.   Okay.

3   Q.   But what Mr. Ruemmler talks about is transparency; right?

4   Mr. Ruemmler says [as read]:

5   "What you are stating is that the WAA does not

6   actually control what is stored by Google, but simply

7   what the user has access to. That is really bad."

8   You would agree with me, I think, two things. First, if

9   Google -- well, it's not "if." It's Google is storing user's

10 WAA-off data, and the user can't go -- know what it is. They

11 can't look at it. They can't get online, like with this thing,

12 and hit My Activity and stuff and go try to look at it; right?

13 The user can't do that?

14 A.   Yes. As I mentioned, though, because it's not associated

15 with the user, we wouldn't know what to show you.

16 Q.   So the user couldn't delete it either?

17 A.   That's correct, because there's no connection to a user.

18 Q.   The only --

19   (Cell phone interruption.)

20   MR. CARMODY: I thought it was my chorus.

21   THE WITNESS: It wasn't me.

22 BY MR. CARMODY:

23 Q.   So let's continue with what Mr. Ruemmler says. He says

24 [as read]:

25   "If we are storing data that the user does not

1   have access to, we need to be clear about that fact."

2   That's what he says; right?

3 **A.**   Yes, and I agree with him.

4 **Q.**   And in context, he's saying PX84 isn't clear; correct?

5 That's what he wants to change the wording in; correct?

6 **A.**   No, I don't think that's what he's saying here, is he?

7 **Q.**   Well, maybe I'm harkening back.

8   It says [as read]:

9   "I see how the wording here is very deceptive."

10   And we're going to continue on where he wants to change

11 that wording.

12   You've seen this email in preparation; right? You're

13 familiar with it?

14 **A.**   I have, yeah.

15 **Q.**   Okay. So you know what's coming. It says "we need to be

16 clear."

17   [As read]:

18   "If we're storing data that the user does not

19   have access to, we need to be clear about that fact."

20   Correct?

21 **A.**   Yeah. I agreed with him.

22 **Q.**   Okay.

23   [As read]:

24   "In this case, the user has a false sense of

25   security that their data is not being stored at

1   **A.**   It does not say that.

2   **Q.**   Okay. Was there anything -- you can put that down -- that

3   counsel for Google showed you that indicated that Google would

4   take, copy, or use any data from the use of third-party apps if

5   WAA or sWAA was off? Did he show you anything like that?

6   **A.**   No.

7   **Q.**   Was there anything that counsel for Google showed you

8   about Google accounts and what was or was not saved in those

9   accounts that indicated that data was saved someplace other

10   than this so-called Google Account?

11   **A.**   No.

12   **Q.**   He didn't show you any of that?

13   **A.**   No.

14   **Q.**   All right.

15   **MR. LEE:** Let's get 67 back up, and let's go to

16   page 16, Mr. Boles. And I'd like to blow up just the bottom

17   half, starting with the categories.

18   Yes. Thank you.

19   **BY MR. LEE:**

20   **Q.**   It might be easier to see it on the screen. I don't know

21   if your screen's working.

22   **A.**   Yes.

23   **Q.**   Okay. Let's try to do this together.

24   **A.**   Okay.

25   **Q.**   So at the top, do you see where it says it's titled

1   "Categories of personal information we collect"?

2   A.   Yes.

3   Q.   The reason I want to focus on this is because counsel for

4   Google talked a little -- a lot about personal information and

5   non-personal information. Do you remember that?

6   A.   I do.

7   Q.   Okay. So let's look at the part of the privacy policy

8   that talks about what Google considers personal information.

9   Okay?

10   A.   Okay.

11   Q.   Let's start at the top. Do you see where it says

12   "Identifiers"?

13   A.   Yes.

14   Q.   Okay. So they include some things that they consider

15   identifiers that are personal information. Do you see that?

16   A.   Yes.

17   Q.   One of those things that they consider personal is -- do

18   you see where it says "unique identifiers"?

19   A.   Yes.

20   Q.   Does Google consider that, according to this page,

21   personal information?

22   A.   According to this page, yes.

23   Q.   And do you see just below, in the same section, they also

24   refer to "application or device you're using"?

25   A.   Yes, I see that.

1   Q.   So the app and device you're using -- apps and device

2   you're using, does Google consider that personal information?

3   A.   Yes.

4   Q.   All right. Let's go a little further down, where it says

5   "Internet, network, and other activity information."

6   Do you see in the second sentence it refers to information

7   about the interaction of your apps, browsers, and devices with

8   our services?

9   A.   Yes, I see that.

10   Q.   That's what this case is about; right?

11   A.   It is.

12   Q.   Does Google consider that your personal information?

13   A.   According to this, yes.

14   Q.   The next sentence, beginning with "and activity on

15   third-party sites and apps that use our services." Do you see

16   that?

17   A.   Yes.

18   Q.   And does Google also consider that your personal

19   information?

20   A.   Yes.

21   Q.   Based on your involvement in this case and the work you've

22   done on this case, does your sWAA-off data include identifiers,

23   your apps, your device, and your app activity on third-party

24   sites that use Google services?

25   A.   Yes, it does.

1   Q.   By the way, let's just be clear. Do you agree or disagree

2   that your sWAA-off data is not personal to you?

3   A.   It is personal to me. It's my information still.

4   Q.   Based on your involvement in this case, can you explain to

5   the jury what you know is included in the sWAA-off data, or

6   I guess what Google's counsel called de-identified data?

7   But let's just stick with sWAA off for purposes of my

8   question. I don't want to get confused.

9   Based on your involvement in this case, explain to the

10   jury what is included in the sWAA-off data that Google collects

11   without permission.

12   A.   Well, they're collecting information about my gender, my

13   location, my apps that I've downloaded, everything I've done on

14   those apps, what I've bought, what I've looked at, things I've

15   clicked, time spent on them, unique ID identifiers -- or I'm

16   sorry -- unique device identifiers, IP address, which is my

17   device. It's -- I would rather give someone my name and my

18   email and my phone number than give them my phone with no

19   passcode because that's everything else. That's all of it.

20   Q.   And do you consider that private to you?

21   A.   Yes, to all of us.

22   Q.   Is it personal to you and the class?

23   A.   Yes.

24   THE COURT: We're now at the witching hour.

25   MR. LEE: I have the last question, Judge.

1   developers, which they would want to use; but the SDKs also

2   came with Google Analytics for Firebase, which is a product

3   within the SDK that gathers data, it takes data from the users'

4   devices and gives that data to Google.

5   **Q.**   I understand there's two different kinds of SDKs here

6   Google released that's at issue in this case. Can you explain

7   a little bit about these two different kinds of SDKs?

8   **A.**   Sure. There's the Firebase SDK, which is -- provides a

9   bunch of different utilities and data collection. And there's

10 also Google Mobile Ads, which is an SDK that allows a publisher

11 to put ads into their app. And Google Mobile Ads interfaces

12 with a couple of Google's advertising services. One is AdMob

13 and the other is Ad Manager.

14 **Q.**   And what about the Firebase SDK in this case? Can you

15 tell me a little bit more about that?

16 **A.**   Sure. Firebase provides a number of useful features for

17 developers. Importantly, it provides Google Analytics for

18 Firebase, which will give some reports to app developers so

19 they can understand how the app is being used, and -- but it

20 also is collecting event-level data, granular data that Google

21 saves.

22 **Q.**   If we could move on to the next slide, what is a

23 third-party app, Doctor?

24 **A.**   A third-party app is an app that's not published by

25 Google. So it could be -- well, there's Starbucks, Disney,

1   Bank of America, Reddit, *New York Times*. There's a whole bunch

2   of third-party apps. There's, in fact, 2.3 million different

3   apps out there.

4   Q.   And how prevalent are the two types of Google SDKs in this

5   case on the various apps in the various mobile phone stores?

6   A.   So these two SDKs are very prevalent. Firebase is used in

7   97 percent of Android apps. It's extremely prevalent in the

8   top thousand Android apps, 97 percent. And it has presence in

9   54 percent of the top thousand iOS apps. Those are the apps

10 for the Apple iPhone.

11 Q.   What about Android?

12 A.   In Android, it's 97 percent of the top thousand apps.

13 Q.   You said in your expert report in this case that all the

14 class members are exposed to Google Firebase and Mobile Ads

15 SDK. What is the basis for that opinion?

16 A.   So the basis for the opinion is that all of these users

17 have a Google Account and they are using a smartphone. And if

18 you look at probability of an app being -- of the Firebase SDK

19 being present in an app, even if you underestimate it, say it's

20 just in 50 percent of apps -- that's a low estimate -- if you

21 think about the average person, over the class period, which is

22 98 months, if you use just ten apps during that period, the

23 chance of running into this SDK is about -- is better than

24 99.9 percent.

25 Q.   If we move on to the next slide, what is your second

1 opinion that you're presenting here today, Dr. Hochman?

2 **A.**   The second opinion is that I established a baseline. In

3 order to do my testing, I had to understand what I was testing

4 against. So my baseline is that Google had created this

5 expectation that people could control whether Google was taking

6 their data and copying it and using it, and that when the

7 Web & App Activity switch was off or when the supplemental

8 Web & App Activity switch was off, when either switch was off,

9 Google wouldn't take their third-party app data and use it.

10 **Q.**   What type of materials did you consider to decide and

11 evaluate this technical baseline that you were testing for?

12 **A.**   So I looked at the Android screens that describe the

13 controls. I looked at Google's privacy policy and related

14 pages. I also considered statements by Google's employees from

15 top to bottom. And those were some of the things that informed

16 what I should be testing against.

17   **MR. MAO:** Your Honor, I'd like to move into exhibit

18 Exhibit -- it's PX120A. And the reason why it's "A" as opposed

19 to 120 is because I think the 120 we had before was a little

20 bit hard to read.

21   Obviously, you're free to examine it. The language, I

22 represent, is exactly the same. Are there any issues with

23 this?

24   **MR. SANTACANA:** Is that in here?

25   **MR. MAO:** Yes.

1   MR. WRIGHT: Interrogatory Number 1.

2   Sorry, Your Honor.

3   (Co-counsel confer off the record.)

4   MR. MAO: Okay. Sure.

5 BY MR. MAO:

6 Q.   Doctor, have you seen this interrogatory response before?

7 A.   Yes.

8 Q.   Did you consider it for the purposes of rendering your

9 technical opinion?

10 A.   Yes, I did.

11 Q.   Okay. Can you tell me a little bit about what this is in

12 terms of the Google response? What does it describe?

13 A.   Yeah. This is a schematic that describes technically how

14 Google is taking data about third-party app activity from

15 users' phones.

16 Q.   Can we focus on the left-hand side here.

17   Can you explain to the jury what this Google response is

18 telling us in terms of how the data flowed and what data was

19 being collected?

20 A.   Sure. The first box represents what's going on on the

21 user's phone. So -- so through the Firebase SDK, the app

22 interaction data generated by the user interacting with the app

23 is going to be gathered, and it's gathered into a data bundle.

24   And Google -- that data bundle includes some things. It

25 includes the event data. Okay. An event is like something

1 you've done on your phone. All right? It could be, you know,

2 starting an app or selecting a different app screen, clicking

3 to a different screen. There are probably 25 different events.

4 We can look at those maybe in more detail.

5   The data bundle also includes some identifiers. It says

6 here some acronyms. Those are identifiers. Those are unique

7 personal identifiers. They identify that phone and the person

8 who's carrying it.

9   There's also some further IDs, some Google IDs, that may

10 be included.

11   And there are also user properties. These are like

12 demographics, like age, gender, location, other things. We

13 also could go into those in more depth too if you want to.

14 Q.   Yes. Let's stay here for a moment.

15   Let me just understand. What exactly is an event data?

16 What is event data?

17 A.   Event data is one event that's happening in the app on the

18 user's phone. So it's one thing the user has done, one step.

19 Q.   Is event data aggregated data?

20 A.   No.

21 Q.   So Google -- is Google here collecting event data or

22 aggregated data?

23 A.   Google is collecting event data.

24 Q.   So in a typical, for example, action in which I'm, for

25 example, viewing a page on an app, how many event datas might

1 that collect?

2 **A.**   Well, it depends what you do on the page, but it could

3 generate multiple events. And if you're using an app --

4 you know, you open an app and you do a variety of things in the

5 app -- you could generate dozens of events, maybe even

6 hundreds.

7 **Q.**   If I open an SDK-using app, does that generate an event?

8 **A.**   Yes.

9 **Q.**   If I'm looking at a specific page on an app, does that

10 generate an event?

11 **A.**   Yes.

12 **Q.**   If I then move to a different page, does that generate an

13 event?

14 **A.**   That's another event.

15 **Q.**   When I stop, go to another app, does that generate an

16 event?

17 **A.**   Yes.

18 **Q.**   When I come back, then, to that app to do something else,

19 does that generate an event?

20 **A.**   Yes.

21 **Q.**   And does that continue tracking me, collecting events, as

22 long as that SDK is on that app?

23 **A.**   Yes. As long as one of Google's SDKs, either Firebase or

24 Google Mobile Ads, is in the app, those events are being

25 collected.

1   **Q.**   And all of those events are not aggregated data; isn't

2   that correct, Doctor?

3   **A.**   No.   They're collected, actually, as individual events,

4   and they're loaded into the data bundle as individual events.

5   **Q.**   Sir, I apologize.   I interrupted you.

6   Can you tell us why -- or what is happening here before it

7   goes to that next step called consent checks?   What is that?

8   **A.**   Okay.   So there's that sort of bold arrow.   That's showing

9   Google taking the data bundle from the user's phone.   That data

10   bundle goes across the Internet and it comes to the second box,

11   which is one of Google's servers.   That's where Google does a

12   variety of processing on that data packet.

13   So the first thing they do when the data packet arrives is

14   Google makes a copy of the packet.   It duplicates it.   So one

15   packet is received and then Google copies it, and now there are

16   two packets there.

17   After that's done, Google performs a consent check.

18   **Q.**   So let me make sure I understand this.

19   Google collects and copies the data before it checks for

20   consent; is that correct?

21   **A.**   That's right.

22   **Q.**   And that is what this graph is actually showing; is that

23   correct?

24   **A.**   Yes.   And it's doing this regardless of the position of

25   the WAA and sWAA switch.   The position of the switch doesn't

1   change the collecting or the copying. That happens every time,

2   all the time.

3   Q.   So all of the systems designed to check for consent, the

4   data is duplicated before it even does that; is that correct?

5   A.   Correct.

6   Q.   Doctor, going back to the second step right here, is DSID

7   a personal identifier?

8   A.   Yes, it is.

9   Q.   Is DSID a pseudonym?

10   A.   Yes, it is.

11   Q.   How could the DSID both be a pseudonym and personal

12   information?

13   A.   Okay. So I'll have to -- I'll have to explain a little

14   bit about that.

15   It's personal information because it's an identifier.

16   It's a unique identifier for each person. Each person, each

17   device has one DSID. And the device is personal. Your phone

18   is in your pocket. It's you. It's very personal.

19   The DSID is also a pseudonym because it's not your proper

20   name. It's just, like, a number.

21   Q.   I see that there's other IDs noted here on this data

22   bundle. Are those other IDs also personal information?

23   A.   The IDFA is, because it's also a device identifier. And

24   the other IDs also are. Some of the other IDs are -- one of

25   them is an app instance ID. It's a mouthful. But the app

1 instance ID is like a serial number for your app.

2   Firebase generates a unique app instance ID for each copy

3 of the app.   All right?   So the same way, like, your

4 refrigerator has a serial number that's different from all the

5 other refrigerators, even though they all look the same, it's

6 like a serial number that identifies your copy of the app.

7 Q.   Can we show the next slide, which is Interrogatory

8 Response -- just page 11, that same interrogatory.

9   The interrogatory is a sworn statement by Google. Is that

10 your understanding?

11 A.   Yes.

12 Q.   Did you consider this sworn statement response by Google

13 for the purposes of rendering your technical opinion?

14 A.   I did. I read it very carefully.

15 Q.   And what is this response telling you?

16   MR. SANTACANA: Objection, Your Honor. We've objected

17 to the designation of this interrogatory response as

18 incomplete. There's more to this.

19   THE COURT: Well, why don't you put up the entire

20 response.

21 BY MR. MAO:

22 Q.   Go ahead.

23 A.   Sure. A preliminary step before the consent check occurs

24 is data duplication.

25 Q.   Okay.

1   **A.**   And the data referred to there is that packet full of

2   event data and identifiers.

3   **Q.**   Can you explain the data duplication process here?

4   **A.**   Yes. It's copying. The data is copied. A single copy of

5   the data packet received from a user's mobile device is made.

6   So one copy is made. There's an original and now there's a

7   copy.

8   **Q.**   Do you have any understanding as to why Google decided to

9   make these copies before consent check is actually done?

10   **A.**   I mean, my inference is that it's -- it's done -- they're

11   creating a copy because that just helps them do what they're

12   trying to do.

13   **Q.**   Okay. Dr. Hochman, are there other Google Firebase

14   products that actually checks for consent before the data is

15   actually sent?

16   **A.**   Could I just add to the prior answer?

17   **Q.**   Sure. Please.

18   **A.**   So, actually, the next sentence is a little bit helpful.

19   [As read]:

20   "This is done to facilitate the eventual data

21   logging" -- okay? -- "that respects user consent

22   choices."

23   **Q.**   Okay.

24   **A.**   Yes.

25   **Q.**   So going back to my question, is there -- are there any

1   well, here's some switches and they should do what they say,

2   and there's Google Analytics, which provides me with aggregated

3   data. I didn't see an immediate contradiction.

4   Q.   You did not see an immediate contradiction when you joined

5   the case. That's exactly what you said in your deposition;

6   right?

7   A.   Well, it's great that I remembered it, yes.

8   Q.   Now, this case focuses on data that's collected by

9   analytics SDK, which is the Firebase SDK and the Google Mobile

10   Ads SDK. Fair to say?

11   A.   Yeah. I'll just be super precise so that no one gets

12   confused. It's collected by Google Analytics for Firebase,

13   which is the product within that Firebase SDK, and also in

14   Google Mobile Ads SDK, yes.

15   Q.   The SDKs in apps that we are talking about, they are

16   installed by the app developer, not Google; right?

17   A.   Correct.

18   Q.   Google doesn't go to Reddit and say, "I'm putting this SDK

19   in your app"?

20   A.   All right. There's a little wrinkle. I just want to be

21   clear. There was a time when Google pushed out an update of

22   the SDK, one of these SDKs, and actually inserted

23   Google Analytics for Firebase into the SDK. So just to be

24   clear, I think I've documented that in my report.

25   Q.   Are you giving the opinion that Google forced developers

1   to use any of these SDKs?

2   A.   No.

3   Q.   Okay. Now, Google Analytics has features that are on

4   automatically and it has features that are customized by the

5   app developer; right?

6   A.   That's right.

7   Q.   Developers can choose which types of information to send

8   to Google, can they not?

9   A.   That's correct.

10 Q.   There are events that are automatically collected; right?

11 A.   Yes, that's right. They're called the default events.

12 Q.   The default events. Earlier we saw one called first open.

13 That's a default event; right?

14 A.   Yes.

15 Q.   But developers can create custom events to add on more

16 information; right?

17 A.   That's correct.

18 Q.   And they do that because there might be something in the

19 app that they want to track and understand how it's working

20 that's not offered by Google as a default?

21 A.   Yes, that's right. There are custom events.

22 Q.   Developers can also choose which user parameters go along

23 with these custom events; right?

24 A.   Yes.

25 Q.   Google has no role in choosing those. There's some

1   default ones, but developers can send a lot more; right?

2   A.   Yes. The developers can choose what data they send to

3   Google, and Google can choose whether to accept that data and

4   save it or not.

5   Q.   Now, you are not aware of any evidence in this case that

6   Google does anything to try and understand what a developer's

7   custom event actually means? You're not aware of any such

8   evidence; right?

9   A.   That's right. I'm not aware of Google attempting in any

10 way to implement safeguards against developers uploading

11 information that's against policy.

12 Q.   You -- let's talk about the logs that you discussed with

13 Mr. Mao.

14   When sWAA is turned off, you concede that Google logs the

15 app activity data in question into a non-GAIA log. You concede

16 that; right?

17 A.   I've said that. I don't -- yes, I've said that.

18 Q.   And you concede that Google Analytics actually doesn't

19 even log IP address; right?

20 A.   Wait a second. Google Analytics is the product that

21 displays the data to the Web developer. Do you mean

22 Google Analytics for Firebase? If so --

23 Q.   I do mean that.

24 A.   Okay. I believe the IP address is sent along in the data

25 packet. I believe we've seen it in the packet. After the data

1   is taken by Google and they receive it and copy it and process

2   it, sometimes that IP address might go to certain places and

3   not to other places. So in a roundabout way, I'm somewhat

4   agreeing with you.

5   Q.   Well, at your deposition, you fully agreed with me that

6   Google does not log IP address with Google Analytics for

7   Firebase.

8   A.   I think that we should just take a look at what I said to

9   be very careful, because if I'd said something wrong, I would

10   correct it.

11   But what I would say is that you can't get the

12   IP addresses from Google Analytics. If you're a developer and

13   you're using Google Analytics, you can't see -- they don't show

14   you the IP addresses.

15   Q.   I asked you, and you were under oath, Google Analytics

16   does not store IP addresses in logs?

17   A.   Yes, Google Analytics data doesn't have the IP address.

18   It's not available. As a Google Analytics user, I can't see

19   the IP addresses.

20   Q.   Now, you -- well, excuse me. No.

21   The question was: Google does not store, Google does not

22   store the IP address that is sent via Google Analytics in any

23   Google logs. It throws it away. You don't deny that, do you?

24   A.   Well, I think we might have been -- there might have been

25   a confusion there because I was thinking of Google Analytics.

1   up the records and identify which ones relate to the same user.

2   And then if they see one email address associated with the

3   user -- let's say the user's got a million events stored. If

4   one of those events leaks the email address, that blows the

5   privacy on the other -- all the other ones.

6   **Q.**   I'm going to ask my question again.

7   You are not offering any evidence here that Google

8   attempts to reidentify users when toxic data makes its way to

9   Google?

10 **A.**   I haven't said that.

11 **Q.**   Now, you understand that it is against Google's rules with

12 Google Analytics for a developer to send an email address to

13 Google; right?

14 **A.**   Oh, yes. I understand that Google has rules, and with all

15 rules, there's some non-compliance. And this is -- I

16 understood that this is -- we're observing non-compliance in

17 the wild, that there are a few apps that were doing this.

18 I think one of them we observed was Career Karma, and the other

19 one was the *Washington Post*.

20 **Q.**   You are not opining in this case that Google is somehow

21 taking advantage of the non-compliance of app developers who

22 are sending information like this? You're not opining that;

23 right?

24 **A.**   No, I'm not saying Google's taking advantage of it. I'm

25 just saying that this non-compliance introduces a risk into the

1   system.

2   Q.   You have seen no evidence that Google does anything with

3   toxic data that happens to make its way to Google in violation

4   of its terms; right?

5   A.   I haven't said that. I haven't said -- I haven't asserted

6   that, no.

7   Q.   You have seen no such evidence?

8   A.   Let's just repeat -- could you repeat what you said

9   before, just because I forgot what you were saying?

10 Q.   Sure.

11   You've seen no evidence that Google does anything to use

12 PII, like an email address, that makes its way to

13 Google Analytics in violation of its terms?

14 A.   I haven't seen anything to suggest that Google's using

15 that PII.

16 Q.   You haven't seen anything to suggest Google is

17 interpreting this either; right?

18 A.   I actually wish that Google would. I wish Google would

19 recognize that this is an email address and reject it.

20 Q.   Can you answer my question?

21 A.   Yeah, I haven't seen Google applying a safeguard here.

22 Q.   You haven't seen any evidence that Google attempts to

23 interpret this and figure out that it's an email address and

24 whose it is; right?

25 A.   Yeah, I haven't seen them doing that.

1   Q.   You also have done nothing to study how frequently this

2   happens; right?

3   A.   Right. I haven't done a statistical survey. This is just

4   something -- this was like an incidental finding. We just

5   accidentally found this happening. I think there were two

6   sites I remember, Career Karma and *Washington Post*.

7   And then in our test app, we actually tried to do it

8   ourselves to see if maybe it wasn't repeatable, but it was

9   repeatable. We were also able to do the same -- cause the

10   system to do the same behavior.

11   Q.   So just to be totally clear with this jury, Google, by

12   default, in Google Analytics, does not collect email addresses;

13   right?

14   A.   I'll just -- I want to be clear. It's in Google Analytics

15   for Firebase, which is part of the Firebase SDK, and Google

16   Mobile Ads SDK. Those products are not, by default, taking the

17   email address in this form.

18   Q.   Google's SDKs at issue in this case were not designed to

19   collect email addresses; correct?

20   A.   They're not the default -- they're not part of the default

21   data that is collected.

22   Q.   Nor does the default design result in the collection of

23   names; right?

24   A.   The default design is not to send the user's name, no.

25   Q.   Nor does the default design result in the collection of

1   phone numbers; right?

2   A.   Correct.

3   Q.   Addresses; right?

4   A.   Correct.

5   Q.   Billing information?

6   A.   Well, as far as addresses are concerned, just the default

7   does collect location information, which can be very

8   identifying.   But it's not collecting the user's mailing

9   address; it's not collecting billing information, no.

10   Q.   Okay.   I want to make sure I got your testimony very clear

11   because we're going to come back to this.

12   Your testimony is that the location information that comes

13   with Google Analytics data is very identifying?   That's your

14   testimony under oath?

15   A.   Yes.   If you have a sequence of location information, even

16   if it's been approximated, that sequence forms an indication

17   of -- that can be specific to a user.

18   Q.   Okay.   I'm glad that you made that clear.

19   You mentioned that Google Analytics for Firebase somehow

20   also involves information about the interests of users.   Do you

21   recall that?

22   A.   Yes.

23   Q.   You have no idea how the interest information in the data

24   that you reviewed was generated; right?

25   A.   Well, I wouldn't put it that way.

1   Q.   Well, you didn't disclose any such idea in your expert

2   report, did you?

3   A.   Just to be clear, that data, that interest information,

4   somehow the app gets it. I'm not concerning myself with how

5   the app got that information. But if the information is there

6   in the app, Google Analytics for Firebase will extract it from

7   the app and put it into that data bundle, and Google then takes

8   that data bundle on its server and it starts, you know, copying

9   it and processing it and doing everything that we've discussed.

10   So the thing that's happening is Google is taking that

11 data from the phone. Now, how it got in there, I'm not saying

12 how it got there.

13 Q.   You do not know?

14 A.   Well, I think that it's sort of not -- that's not my

15 opinion of how it got there. It's just that the data, if it's

16 in the app, Google Analytics for Firebase will collect that

17 interest data by default and send it along.

18 Q.   Okay. Now, I think you mentioned that Dr. Black, who

19 responded to your expert report, did some math about this

20 incidental amount of email addresses and names that comes

21 through Google Analytics.

22 A.   Yes.

23 Q.   And just to put numbers on it, the incidental amount, he

24 found that for one of the plaintiffs, 16,009 out of the 16,163

25 entries in the data had no such toxic data in them; right?

1 one the YouTube video counter because that would open it up to

2 fraud, would it not?

3 A.   Again, this is a -- this is a different problem. It's a

4 different matter.

5 Q.   You are a very smart man. I'm sure you can think through

6 this one.

7 A.   I'm not going to shoot from the hip and redesign Google's

8 ad and video auditing systems while I sit here on the stand. I

9 can't do that.

10 Q.   Do you recall earlier today when you said that the

11 location data that Google Analytics sends is very identifying?

12 Do you remember you said that?

13 A.   Yes, it could be.

14 Q.   And I asked you to confirm that that was your under-oath

15 testimony; right?

16 A.   Yes, and I explained it in further detail.

17 Q.   I also asked you, at the very beginning of this

18 examination, if you discovered a mistake in your opinions, you

19 would correct it; right?

20 A.   Yes.

21 Q.   Okay. You personally observed location data in the form

22 of latitude and longitude in the data that you reviewed; right?

23 A.   Yes.

24 Q.   And you summarized the records that had latitude and

25 longitude in them, and in that summary, you put in -- you put

1   in how many records were associated with each latitude and

2   longitude; right?

3   A.   Let's take a look at the document because I -- wow, there

4   were a lot of documents in this case.

5   Q.   Well, let me ask you this: Is it your testimony today

6   that the latitude and longitude that you observed in, for

7   example, Plaintiff Susan Harvey's pseudonymous log data that

8   was provided by Google to you, that that latitude and longitude

9   was very identifying? Is that your testimony?

10   A.   Ah. So I just want to be clear. I'm aware that the

11   latitude and longitude that Google eventually puts in the logs

12   may be city level; in other words, it may not be precise. I'm

13   aware of that.

14   The point I'm making is a little different point than the

15   one you're, I think, trying to fix, which is that when you look

16   at someone's history, when there is many, many readings --

17   Q.   Uh-huh.

18   A.   -- you can say the person was in this city, then they were

19   in this city, and now they're in that city, and people have

20   patterns. Over time, this pattern is identifying. You develop

21   a unique signature of your travels. That's the point I'm

22   making. It's a subtle point and it's a different point than

23   one, I think, you're trying to get at.

24   Q.   Well, I want to make sure it's clear for the jury because

25   I don't think it was clear when you were testifying earlier.

1   The latitude and longitude data that is sent to Google

2   when sWAA is off from these SDKs is the city center of the city

3   the user's device is in; correct?

4   A.   I absolutely agree with you.   That's correct.

5   Q.   It is the center -- if they're in Sacramento, like Susan

6   Harvey was, that latitude and longitude tracks to the center of

7   Sacramento; right?

8   A.   Yes.

9   Q.   She could be on the very edge of Sacramento and the

10 latitude and longitude is the center of Sacramento?

11 A.   Yes.

12 Q.   So your testimony is that if she moves around cities a

13 lot, someone who is a nefarious actor might somehow form a --

14 find a pattern in that and figure out that it's Susan Harvey

15 who did that.   That's your testimony?   That's what you're

16 worried about?

17 A.   Well, essentially the facts of it are, if you have a

18 sequence of location data, and especially if you overlay it

19 with some of the other rich data that's in the record, it can

20 form a signature, an indicator of who that is.

21 Q.   Now, I want to make sure you're very clear because you

22 said it was very identifying, and I want to make sure the jury

23 understands.

24   You are not saying here today that Google uses the data

25 from these SDKs to figure out where devices are or to whom they

1   belong, when sWAA is off, based on the city center that is in

2   that data packet? You haven't seen evidence that Google is

3   taking steps to do that; right?

4   A.   No.

5   Q.   Okay. Now, in the course of your work analyzing all of

6   the data in this case, you actually found no evidence that

7   Google has ever joined together, in the same log, a user's

8   device ID and that user's GAIA ID?

9   A.   I'm just thinking if there may be an exception to that. I

10 mean, the key thing is that I haven't seen all the logs that

11 Google keeps.

12 Q.   I don't think that is the key thing, Dr. Hochman. The key

13 thing is that I asked you a very specific question and you

14 didn't answer it. So I'm going to ask it again.

15   You have found no evidence that Google has ever joined

16 together, in the same log, a user's device ID and their GAIA

17 ID; correct?

18 A.   I don't think I've -- I don't recall whether I found that

19 or not, but I don't recall having found it.

20 Q.   And you also found no evidence that Google actually did

21 join sWAA-off data together with a GAIA ID, no evidence of

22 that?

23 A.   I understand that Google claims to have a policy against

24 doing that.

25 Q.   In fact, in your words, Google actually has the best

1   intentions of keeping that data apart. You've said that under

2   oath; right?

3   A.   I think I said something, but we should probably look at

4   what exactly I said.

5   Q.   Do you doubt -- based on your review of the design of

6   Google's systems, the consent check on different servers, the

7   separation of pseudonymous data, do you doubt that Google's

8   design is there to separate GAIA ID from analytics data when

9   sWAA is off?

10   A.   My understanding is that Google is attempting to separate

11   the data. At the same time, that's at the downstream point.

12   But at the same time, when the data is actually collected by

13   Google, all of the data, as it comes in, Google knows exactly

14   who that is at the time it's being taken and copied before even

15   the consent check is done. And that, I think, is important to

16   keep in mind.

17   MR. SANTACANA: Your Honor, I move to strike

18   everything in that response beginning with the phrase "At the

19   same time."

20   THE COURT: Overruled. These questions are --

21   overruled.

22   BY MR. SANTACANA:

23   Q.   Dr. Hochman, you were asked earlier if Google is able to

24   reidentify the user using sWAA-off data. Do you recall that

25   question?

1   A.   Yes.

2   Q.   If Google is able to, and you said absolutely. Do you

3   remember that?

4   A.   Yes.

5   Q.   You are not giving this jury the opinion that Google has

6   ever, in fact, reidentified the user; right?

7   A.   In terms of has Google done that? I don't have -- I don't

8   say that Google has done that. Google says that they don't,

9   and that's where I have to leave it.

10   Q.   You also said there is nothing technically preventing

11   Google from relinking all of this data together. Do you

12   remember saying that?

13   A.   Yes.

14   Q.   Now, in order to relink all of this data together, which

15   you say is technically possible, would you agree with me that

16   to do that, Google would have to change the way its systems

17   work? That is not how they work now.

18   A.   Okay. So you're asking me to make a categorical statement

19   about how all Google systems work, which I haven't observed.

20   So I'm not going to contradict you, but I'm not going to

21   confirm your assertion either.

22   Q.   Well, you made a categorical statement when you said that

23   nothing is technically preventing Google from relinking all of

24   this data. You remember saying that?

25   A.   Yes.   The data, by its nature, by being rich data, full of

1   identifiers and full of details about the person, lends itself

2   to reidentification, and preventing reidentification is a very

3   hard problem. And as a result, my opinion is that nothing

4   stops Google from reidentifying it.

5   Q.   But Google hasn't done it. You're just saying it's

6   technologically possible.

7   A.   Well, I mean, I also observe that Google has a policy

8   against doing it, and one has a policy because one is trying to

9   prevent something from happening that could happen. If it was

10   impossible, then there would be no need for a policy. They

11   would just -- it would never happen.

12   MR. SANTACANA: I move to strike the answer as

13   nonresponsive, Your Honor.

14   THE COURT: Overruled.

15   BY MR. SANTACANA:

16   Q.   Dr. Hochman, you are not offering the opinion in the case,

17   I want to be very clear, that Google has actually relinked

18   sWAA-off data; right?

19   A.   I'm not offering the opinion that Google has relinked

20   sWAA-off data with the GAIA data.

21   MR. SANTACANA: I have no further questions,

22   Your Honor.

23   REDIRECT EXAMINATION

24   BY MR. MAO:

25   Q.   Good afternoon, Dr. Hochman. I will try to make this

1   quick.

2   You were just asked a number of questions about battery

3   depletion.

4   Can I put up the battery depletion interrogatory just so

5   we can put that into the record?

6   Can you -- have you seen this interrogatory response

7   before?

8   A.   I have.

9   Q.   Did you consider this interrogatory response for the

10   purposes of rendering your opinion in this case?

11   A.   Yes.

12   Q.   And where in this interrogatory response does it tell you

13   that battery depletion is an issue for Google when it's

14   collecting sWAA-off data, notwithstanding sWAA button being

15   off?

16   A.   Sure. Let's look at the second paragraph [as read]:

17   "For Android apps with Google Play services

18   enabled, GA for Firebase data is collected from all

19   apps into a central file called App Measurement DB,

20   which is periodically uploaded to Google's servers.

21   Google does this because it saves battery for users

22   whose devices would otherwise be initiating more

23   uploads every day. On iOS devices this is not

24   possible, so each GA for Firebase-enabled app

25   periodically transmits the data to Google's servers

1   BY MR. LEE

2   Q.   You see at the top there, it says [as read]:

3   "Google can save information like websites and

4   apps you use and your activity on websites and in

5   apps that use Google services."

6   Do you see that?

7   A.   Yes.

8   Q.   And just below that, it says [as read]:

9   "To let Google save this information, Web & App

10   Activity must be on."

11   Do you see that?

12   A.   Yes.

13   Q.   If Google saves your app activity data even when WAA is

14   turned off, is this statement that "To let Google save this

15   information, Web & App Activity must be on," in your view, true

16   or false?

17   A.   False.

18   Q.   If Google offered you a privacy control but you can't

19   really stop Google from collecting your information, would you

20   still say that Google offered you a privacy control?

21   A.   No.

22   Q.   When I said the word "privacy control," I notice you kind

23   of shook your head. Is there something that bothers you about

24   that word?

25   A.   So I just don't understand why they would use that term,

1   if there's privacy and I have control, but there is no privacy

2   and there is no control over that.

3   Q.   The jury's heard a lot about data that Google considers

4   personal information versus non-personal information. Do you

5   remember that?

6   A.   Right.

7   Q.   All right. Let's talk about the types of data Google

8   collects and uses when sWAA is off.

9   Based on your involvement in this case, your work on this

10   case, what are the types of data that Google collects when WAA

11   or sWAA is turned off?

12   A.   So it's -- to me, the way I look at it is it's like pieces

13   of a puzzle, in a sense. So one piece, they have my device ID.

14   Another piece would be the apps I downloaded, which ones I

15   opened. Another one would be gender. Another one would be

16   age. There's a lot of other ones as well that kind of just,

17   when you put it all together, it becomes -- it is me.

18   Q.   Right.

19   Is IP address one of those puzzle pieces?

20   A.   Yes.

21   Q.   Your location, is that a puzzle piece?

22   A.   Yes.

23   Q.   Device type, is that a puzzle piece?

24   A.   Yeah.

25   Q.   How about what language you speak? Is that a puzzle

1   piece?

2   A.   Yes.

3   Q.   How about every single thing you've done on your apps with

4   these SDKs?   Is that a puzzle piece?

5   A.   It is.

6   Q.   What you read?

7   A.   Yes.

8   Q.   What pictures you looked at?

9   A.   Yep.

10   Q.   What you purchased?

11   A.   Yes.

12   Q.   Things you clicked on?

13   A.   Right.   Yes.

14   Q.   Now, when you put all these pieces together, even if a few

15   pieces are missing, is it obvious who the picture that the

16   puzzle forms is of?

17   A.   Yeah.   It's -- it's me.

18   Q.   Do you believe all of this information, these puzzle

19   pieces, are private?

20   A.   Yes, definitely.

21   Q.   Do you believe that information is personal?

22   A.   Very personal.

23   Q.   Let's talk about a few examples.   Did you ever use the

24   NightOwl Companion app while you had sWAA off?

25   A.   Yes.

1   Q.   What's that app for, Mr. Rodriguez?

2   A.   It's an app for sleep apnea.

3   Q.   Do you consider your sleep apnea a private and personal

4   matter?

5   A.   Definitely it is.

6   Q.   Did you ever use the MIPC camera app while sWAA was off?

7   A.   Yes.

8   Q.   And is that app for like home security?

9   A.   Yes. It connects to my cameras in my home.

10   Q.   Do you consider what you do for home security a private

11   and personal matter?

12   A.   Oh, yeah, definitely.

13   Q.   Did you ever use the Career Karma app while sWAA was off?

14   A.   Yes.

15   Q.   And what's that for?

16   A.   That's an app that has -- it's a company that helps you

17   switch careers, and you get assigned a coach and they basically

18   help you with that.

19   Q.   Do you consider whether you're looking for a new job

20   something that's private and personal to you?

21   A.   Yes.

22   Q.   Do you consider the name of your coach, your Career Karma

23   coach, private and personal to you?

24   A.   Oh, yeah.

25   Q.   Do you want Google knowing all these things?

1 idea that you should have deducted fixed overhead costs from

2 your calculation of Google's profits?

3 A.   Sure. To be fair, I think he thinks that they're

4 incremental costs. I just want to be clear about that.

5 I think that they're fixed costs.

6   And I disagree with him based on all the reasons that we

7 talked about, that those are not incremental costs. Those are

8 fixed costs. They would not change if this revenue that I

9 calculated here was to be -- was to go away.

10 Q.   And do you also understand that Dr. Knittel has raised

11 various criticisms, saying, "Well, you should be, in

12 calculating profits, thinking of a but-for or an alternate

13 world where maybe this data could have been taken in some other

14 way or used by some third party"? Are you aware of that

15 criticism?

16 A.   I am aware of that criticism.

17 Q.   What's your response to this criticism about changing

18 elements of a but-for world when you're calculating profits?

19   **MR. HUR:** Objection, Your Honor. Undisclosed opinion.

20 Foundation.

21   **THE COURT:** Overruled.

22   **THE WITNESS:** Well, look, I'm calculating what

23 actually happened in the real world, what Google actually

24 profited -- how Google actually profited.

25   What they might do in some but-for world if they didn't

1   take the information that they took, that's a separate

2   question. And so I'm looking at what the actual profits were.

3   **BY MS. BONN:**

4   **Q.**   And can you give an example, in the context of your

5   analogy, why is it that you would be able, in the case of

6   someone who takes a necklace, to calculate the profits they

7   made without changing other elements of what you'd call the

8   but-for world?

9   **A.**   Yeah, I mean, if you think of it this way: If they took

10   the necklace, they sold it for $500, that's how much they

11   actually made. But, on the other hand, if you had to say,

12   "Hey, wait a second, what could they have done instead of

13   getting the necklace and hocking it for $500," they might have

14   asked you for it or they might have done something different.

15   They might have had someone else steal it and sell it for

16   something different. It just doesn't make any sense.

17   **Q.**   Okay. Are you aware that Dr. Knittel has also raised a

18   criticism that in the latter part of the class period, Apple

19   iPhones implemented a change in a new version of iOS that

20   prevented a single device identifier called IDFA from being

21   sent to Google in certain cases?

22   **A.**   Yes, I understand that.

23   **Q.**   And are you aware of his opinion that that means all those

24   members of the class should be excluded and they're uninjured?

25   **A.**   Yes, I am.

1 Q.   And what's your response to that?

2   MR. HUR: Objection, Your Honor.   Foundation.

3 Undisclosed opinion.

4   THE COURT: Overruled.

5   THE WITNESS: So my understanding is that Google does

6 get the data from the iOS.

7 BY MS. BONN:

8 Q.   SWAA-off data?

9 A.   The sWAA-off data from the Google iOS devices and they are

10 able to store it, and so I don't think that it's appropriate

11 that they would be barred from being part of the class.

12 Q.   And is that your opinion even if one identifier, the IDFA,

13 was no longer collected?

14 A.   That is, yes.

15 Q.   Let's go back to the last slide.

16   What is your final opinion in terms of what you are

17 sharing with the jury on Google's unjust profits for Class 1

18 and Class 2 compared to compensatory damage baseline for

19 Class 1 and Class 2?

20 A.   So for compensatory damages baseline, $266 million for

21 Class 1, $256 million for Class 2. Unjust enrichment would be

22 $929 million for Class 1 and $569 million for Class 2.

23   MS. BONN: Thank you, Mr. Lasinski.

24   Nothing further at the time, Your Honor.

25   THE COURT: Members of the jury, we'll take our second

1 break at this point. Remember my admonitions not to discuss

2 this amongst yourselves or with anyone else, and we'll be back

3 here at certainly no later than 12:15.

4   (Recess taken at 11:53 a.m.)

5   (Proceedings resumed at 12:14 p.m.)

6   (Proceedings were heard out of the presence of the jury.)

7   **THE COURTROOM DEPUTY:** Please remain as you are and

8 court will come to order.

9   **THE COURT:** Everybody in their place? Ready to bring

10 them in?

11   **MR. HUR:** Yes, Your Honor.

12   (Proceedings were heard in the presence of the jury.)

13   **THE COURT:** The jury is present.

14   Mr. Hur, cross-examination.

15   **MR. HUR:** Thank you, Your Honor.

16   Good afternoon, members of the jury.

17   **CROSS-EXAMINATION**

18 **BY MR. HUR:**

19 **Q.**   Good afternoon, Mr. Lasinski. We haven't met before?

20 **A.**   That is accurate, yeah.

21 **Q.**   My name is Ben Hur, and I'm counsel for Google in this

22 case.

23   In addition to being hired by the Susman Godfrey firm five

24 times, you've also been hired by the Boies Schiller firm;

25 right?

1   A.   Yes, exactly.

2   MR. HUR: We can take that down.

3   BY MR. HUR:

4   Q.   Mr. Lasinski, you agree it's important to correct any

5   errors in your analysis; right?

6   A.   Yes, sir.

7   Q.   And if you knew about errors, you would correct them;

8   right?

9   A.   Yes, sir.

10   Q.   And just this afternoon, right before I got up, you

11   offered a critique about your failure to analyze the impact of

12   a change in Apple's software. Do you remember that?

13   A.   I'm sorry. I don't -- I don't --

14   MS. BONN: Objection. Vague.

15   BY MR. HUR:

16   Q.   Do you remember being asked about a --

17   THE COURT: Wait, wait, wait. We've got now three

18   people talking.

19   MR. HUR: I'm sorry, Your Honor.

20   THE COURT: Okay. Question.

21   BY MR. HUR:

22   Q.   Do you remember being asked about a software release that

23   Apple made that revealed a new feature called App Tracking

24   Transparency?

25   A.   Yes, sir.

1   **Q.**   And at the time of your deposition, you didn't know

2   whether Apple's software update changed Google's ability to

3   determine whether an iPhone user had sWAA on or off; right?

4   **A.**   That is correct, sir.

5   **Q.**   And you didn't -- now, you offered a supplemental report

6   earlier this year; right?

7   **A.**   Yes, sir.

8   **Q.**   You didn't mention any new opinion about App Tracking

9   Transparency, did you?

10   **A.**   No, sir. I do not think that one's necessary.

11   **Q.**   And it is your opinion that Google can still measure

12   conversion measurements per device even when an iPhone user

13   has App Tracking Transparency enabled; isn't that what you

14   testified to this afternoon?

15   **A.**   My understanding is that they still get the sWAA-off data

16   whether -- when sWAA is off, and so Google gets that

17   information. That's what I testified to.

18   **Q.**   Do you know, one way or the other, whether when an Apple

19   iPhone user has App Tracking Transparency off, whether Google

20   can measure conversions from that device?

21   **A.**   My understanding is that they can, that they use an

22   algorithm that can do that. That's my understanding.

23   **Q.**   Your understanding is that Google can directly measure the

24   conversion event if an Apple iPhone user has App Tracking

25   Transparency enabled; is that your testimony?

1   **A.**   I'm not a technical expert. You're getting into technical

2   details. That's not my testimony. I said that they still

3   collect the information, and that my understanding is that they

4   can make a conversion measurement off of that information.

5   **Q.**   You were willing to testify about technical issues when

6   your counsel was asking the questions, weren't you?

7   **A.**   I don't believe that I was, sir.

8   **Q.**   Mr. Lasinski, do you know, one way or the other, whether

9   when App Tracking Transparency is enabled, Google can actually

10   measure a conversion event from that iPhone?

11   **A.**   You're using the word "actually." I -- again, I'm not the

12   technical expert, so I think you're outside the scope of my

13   opinions here.

14   **Q.**   Okay. So you don't -- you're not offering an opinion one

15   way or the other on that; is that fair?

16   **A.**   Not on -- not on technical issues, no, sir.

17   **Q.**   You relied on something called the ChromeGuard study to

18   identify the proportion of AdMob revenue attributed to

19   conversion measurement; is that right?

20   **A.**   Yes, sir.

21   **Q.**   And you rely upon it to also identify the proportion of

22   Ad Manager revenue attributed to conversion measurement; right?

23   **A.**   Yes, sir.

24   **Q.**   Now, ChromeGuard, I think you said, was a study related to

25   the impact of changing certain settings in Chrome's incognito

1   **A.**   Yes.

2   **Q.**   That you personally made?

3   **A.**   Yes.

4   **MR. DAVID BOIES:** I would offer Plaintiffs'

5   Exhibit 213, Your Honor.

6   **MR. ATTANASIO:** No objection.

7   **THE COURT:** 213 will be admitted.

8   (Trial Exhibit PX213 received in evidence.)

9   **BY MR. DAVID BOIES:**

10   **Q.**   And there is a comment on the second page by Mr. Posner.

11   Do you see that?

12   **A.**   Yeah. This would have been Rajni Posner.

13   **Q.**   And who was he?

14   **A.**   She was a marketing -- product marketing manager for

15   Google at the time.

16   **Q.**   And was she a part of the Privacy Advisor review?

17   **A.**   Again, I don't recall this specific review, what this

18   meeting would have been, but she would have been somebody that

19   we would have talked to about the project as we were developing

20   it.

21   **Q.**   Mm-hmm. And she says, if we could highlight this

22   [as read]:

23   "I might suggest moving into passive tense here

24   so it doesn't feel as dramatic that Google is saving

25   it."

1   Referring to data; correct?

2   A.   It's saying what data Google saves and uses, yes.

3   Q.   And -- and there's a comment by Mr. Warren, David Warren.

4   Who is David Warren?

5   A.   David Warren was a user experience writer at or working

6   with the PDPO. I don't recall.

7   Q.   Now, when Mr. Warren says, "If we're pushing the control

8   story," what is he -- what's he talking about when he's talking

9   about "pushing the control story"?

10   A.   I don't know.

11   Q.   Well, isn't it the case, sir, that at this time Google was

12   trying to convince its users that they had control over the

13   data that Google collected and used?

14   A.   I would say that would be fair.

15   Q.   Okay. And -- and when you saw this at the time, is it

16   fair to say you understood that that's what Mr. Warren was

17   referring to when he talked about "pushing the control story"?

18   A.   I don't know.

19   Q.   Let me ask you to -- well, before I do that, you're aware,

20   are you not, that the chief executive officer of Google

21   testified in front of Congress in December of 2018?

22   A.   Yes.

23   Q.   And you watched that at the time; right?

24   A.   Yes.

25   Q.   Now, when did you remember watching it at the time?

1 A.   I -- to my recollection, I was asked about it in my

2 deposition; and in reviewing documents from my deposition, I

3 had a memory once I got to look at the actual testimony.

4 Q.   Because during your deposition, you said you didn't recall

5 watching it; correct?

6 A.   That's correct.

7 Q.   And -- and during your deposition, you were showed a clip

8 of it; correct?

9 A.   Yes. I -- I -- I believe that or reading a transcript. I

10 don't -- I don't remember which.

11 Q.   And when you were confronted with this, you said at your

12 deposition you didn't even know whether that was Mr. Pichai;

13 correct?

14 A.   I believe when we were reading the chat transcript out of

15 context, yes.

16 Q.   When you say "reading the chat out of context" --

17 A.   There was a chat discussing the testimony, yes.

18 Q.   So -- and at that time, it was your testimony under oath

19 that you didn't even know whether the Sundar referred to there

20 was Mr. Pichai; correct?

21 A.   Yes.

22 Q.   And that wasn't true, was it, sir?

23 A.   I don't think that's fair.

24 Q.   There's only one Sundar at Google that you know of;

25 correct?

1   fair?

2   **A.**   Not for Google Analytics for Firebase.

3   **Q.**   So let's say they do it. What happens to the data once it

4   arrives in the apartment?

5   **A.**   So it's logged in that apartment. It stays there for a

6   certain period of time; but after that period of time elapses,

7   which I believe is 56 days for our logs, then this raw PII data

8   is deleted.

9   **Q.**   It's there for how long?

10 **A.**   56 days in our logs.

11 **Q.**   And then after that?

12 **A.**   After that, in -- once that data gets processed and moved

13 down the pipeline, it's stored in the account, in this

14 apartment, and the app -- you know, the app developer can

15 choose how long to retain that raw data, but the default is

16 60 days.

17 **Q.**   Do you have a sense, Mr. Ganem, of how common of a problem

18 it is that app developers send PII against your policies?

19 **A.**   We -- I don't know what proportion does. I don't believe

20 it's super common, but obviously it does happen.

21 **Q.**   Do you catch every instance of it?

22 **A.**   No, we don't.

23 **Q.**   Is this a problem -- this data sneaking in, I think

24 Dr. Hochman called it toxic data, is this problem something

25 that you worry about in your job?

1   A.   I'm -- it bothers me.   I would say that I'm confident that

2   our systems won't use it and won't make use of it.   So that's a

3   baseline comfort level.   But it bothers me that customers are

4   sending it in because it gives the false impression that

5   Google Analytics wants this data or uses it.

6   Q.   Can you understand, Mr. Ganem, how some users might be

7   concerned about this problem of PII sneaking its way into your

8   product?

9   A.   Yes.

10   Q.   Do you -- is there anything that you would tell, if you

11   could, the members of the class about this problem?

12   A.   I would say this is a violation of our policy.   It

13   shouldn't be happening, and we are taking steps to make sure it

14   doesn't happen.

15   Q.   And just to put a fine point on it, Mr. Ganem, do you or

16   have you ever intended for app developers to send you this kind

17   of information?

18   A.   No.

19   Q.   Okay. I'd like to take a step back now, and I want to use

20   an example. If you could, please, let's use the Reddit example

21   that's come up a few times in the trial.

22   Why would Reddit want to use Google Analytics for Firebase

23   in its app?

24   A.   Reddit might want to use Google Analytics for Firebase in

25   its app to understand trends in user behavior.

1   Q.   How does Google Analytics help them do that?

2   A.   There's all sorts of valuable reporting and insights with

3   metrics like how many -- how many users are logging into Reddit

4   each day, week, or month. Do they post? Do they read? How

5   many posts or reads? Where do they come from? How do they

6   discover Reddit in the first place when they signed up? Things

7   like that.

8   Q.   Sorry to interrupt.

9   How good is your product at helping them understand how

10 their product is being used?

11 A.   I'd like to think it's world class, and I think the

12 adoption shows that.

13 Q.   We've heard reference to the concept of a Google Analytics

14 event. What is a Google Analytics event?

15 A.   An event, roughly speaking, describes a user interaction

16 in an app.

17 Q.   What's an example of an event?

18 A.   So in the context of Reddit, a session start event would

19 indicate -- would be logged by the app when the app is opened

20 by the user.

21 Q.   Is Google Analytics necessary for the Reddit app to

22 function?

23 A.   No.

24 Q.   Is it an optional feature effectively?

25 A.   Yeah, it's optional.

1   A.   I do.

2   Q.   And one of the things that you talked with your counsel

3   about was Google Exhibit 929, the scrubbing policies?

4   A.   Yes.

5   Q.   Do you recall that?

6   A.   Yes.

7   Q.   I'd like to direct your attention to a note that's right

8   at the top of the page. Can you read that note to the jury,

9   please?

10   A.   [As read]:

11   "Despite the name 'Dynamic Anonymization,' this

12   framework performs deidentification rather than true

13   anonymization. It's important to remember that

14   sawmill data is sensitive and potentially

15   reidentifiable even after the scrubbing described

16   here."

17   Q.   And by "reidentifiable," you mean you've de-identified

18   somebody and now you reidentified them; correct?

19   A.   Yes.

20   Q.   The -- you also talked to your counsel about Google

21   Exhibit 926. Do you recall that?

22   A.   Yes.

23   Q.   And under "Purposes of the Policy," right at the very top,

24   do you see where it says, "This policy does not," in italics?

25   Do you see that?

1   A.   I do.

2   Q.   Could you read that to the jury?

3   A.   It says [as read]:

4   "This policy does not apply to identification of

5   users across devices based on characteristics such as

6   location, router IP address, or Web history (also

7   known as cross-device linking, behavioral pattern

8   linking, or probabilistic heuristic device

9   association)."

10   Q.   And those are all ways by which you use modeling or some

11   kind of algorithm to try to connect people and data; correct?

12   A.   Possibly.

13   Q.   Now, when Google first receives this sWAA-off data from

14   the app, whatever it is, it has all of the personal identifiers

15   in it; correct?

16   A.   Yes.

17   Q.   And Google makes a copy of that; correct?   The first thing

18   that happens is it goes into the memory of your server;

19   correct?

20   A.   Yes.

21   Q.   Okay. And you then perform -- after that happens, after

22   this copy is made, you perform the consent check; correct?

23   A.   I think you skipped the copy step. You said it arrives at

24   the server but before it's written to any disk, a duplicate is

25   made.

1   Q.   Before it is written, a duplicate is made?

2   A.   Before it's logged or saved anywhere in disk.

3   Q.   Well, when you save, it's saved in memory.

4   A.   It's in memory.

5   Q.   Right. I mean, when it first comes in, the data comes in

6   as electrons and it's put in -- a copy of that is put into your

7   memory; right?

8   A.   Yes, short-term memory.

9   Q.   Right. Now, once it's in there, another copy is made; is

10   that correct?

11   A.   Yes, for this consent check.

12   Q.   And that second copy is what is de-identified, and the

13   first copy is going to be destroyed; correct?

14   A.   I don't know about destroyed. It separates the --

15   Q.   It's separated?

16   A.   Yeah.

17   Q.   Okay. So the sWAA-off data comes in, and then it's copied

18   into memory. A second copy is made, and those two copies are

19   separated; correct?

20   A.   Yes.

21   Q.   Now, you then perform the consent check; correct?

22   A.   That's right.

23   Q.   And you said that you could perform the consent check on

24   the device and never bring in the identified information;

25   correct?

1 **A.**   Yes, though I noted that I believe that's an inferior

2 design.

3 **Q.**   But you thought that was inferior?

4 **A.**   Yes.

5 **Q.**   It wouldn't be as good for Google; correct?

6 **A.**   It wouldn't be as good for Google or the app developer

7 that's using our service.

8 **Q.**   But what you're concerned about is what's good for Google;

9 correct?

10 **A.**   What's good for the app developer is what's good for

11 Google because of the virtuous cycle.

12 **Q.**   You want it to be good for the app developer because

13 that's going to help Google make more money; correct?

14 **A.**   I want to make the best product for our customers.

15 **Q.**   But that's not just an eleemosynary impulse. You're just

16 not a charitable institution. You're doing it because you want

17 to make money from it; correct?

18 **A.**   It's a business, so certainly we want to succeed.

19 **Q.**   Right.

20 **A.**   Yeah.

21 **Q.**   I'm not suggesting there's anything wrong with trying to

22 make money. I'm just saying that that's what -- that's why you

23 are using this data, to make money for Google; right?

24 **A.**   Ultimately, we believe that Google will benefit when app

25 developers benefit.

1   Q.   Well, are you -- is it your testimony that conversions are

2   not a metric that Google and the advertiser uses to determine

3   how much money the advertiser pays?

4   A.   No.

5   Q.   Is that your testimony?

6   A.   My testimony is that conversion --

7   Q.   I'm asking: Is that your testimony?

8   A.   Not quite.

9   Q.   Okay. So are there -- as you use the term "conversions"

10   within Google, applying to advertising, are there instances

11   where advertisers pay more money because an ad has resulted in

12   a conversion?

13   A.   Yes.

14   Q.   Okay. That's what I was trying to get at.

15   And so one of the benefits to Google of proving a

16   conversion, or establishing a conversion, is that it will get

17   more advertising dollars; correct?

18   A.   Yes.

19   Q.   Okay. And in order to get a conversion, you need to link

20   up two events. You need to link up the ad and you need to link

21   it up to the conversion event; correct?

22   A.   Yes.

23   Q.   And you've got to establish that the same device that saw

24   the ad or clicked on the ad was the same device that went to

25   the conversion event; correct?

1   A.   That's one way to do it.

2   Q.   Now, when you say, "That's one way to do it," sometimes

3   you're able to connect those two events by observing them;

4   correct?

5   A.   Yes.

6   Q.   Sometimes, for some reasons, you're not able to do that

7   and then you model it; correct?

8   A.   Yes.

9   Q.   And when you model it, what you're trying to do is, for a

10   conversion event that you can't tie directly to a device ID,

11   you use other things that you know about that device or the

12   person using that device to infer that that is the same person;

13   correct?

14   A.   I don't agree with the same-person aspect of it.

15   Q.   Same device?

16   A.   Yes, something like that.   I'm not super familiar with the

17   conversion modeling and ads piece.

18   Q.   But you agree that what you're doing in conversions is

19   you're trying to tie the phone, say, that bought the product

20   with the phone that saw the ad; correct?

21   A.   "Connect" isn't the word I would use --

22   Q.   Connect.

23   A.   -- but measure how many conversions were related to the ad

24   campaign.

25   Q.   And you use sWAA-off data for conversion tracking;

1 correct?

2 **A.**   Yes.

3 **Q.**   Okay. And that is -- and that, again, is valuable to

4 Google because it allows you to get more advertising dollars;

5 fair?

6 **A.**   It can.

7 **Q.**   Now, you understand that when somebody turns off WAA, it

8 automatically turns off sWAA?

9 **A.**   I do.

10 **Q.**   And you understand that a number of people leave WAA on

11 but turn sWAA off; correct?

12 **A.**   I presume. I don't know the numbers, but I know that's a

13 possibility.

14 **Q.**   And would you agree that people who turn off WAA or sWAA

15 are people that are particularly concerned with their privacy?

16 **A.**   I mean, I don't know all their intentions, but that's a

17 possibility.

18 **Q.**   Well, but that's something that Google believes; correct?

19 That's why you have these.

20 **A.**   We offer the control because we believe there are people

21 out there who want more control over what's collected and how

22 it's used.

23 **Q.**   Yes. And you agree that there's no way, under the present

24 system, that a Google user with sWAA off can see what data

25 Google has collected about their use of third-party mobile

1   apps; correct?

2   A.   This de-identified data? No. There's -- I agree.

3   Q.   And you also agree there's no way for a Google user to

4   delete the sWAA-off data that Google has collected and saved;

5   correct?

6   A.   The sWAA-off data that's collected into Google Analytics?

7   No, there's no way for them to delete that data that's

8   de-identified.

9   Q.   Now, let me just follow up with that answer. You said

10 there was no way to delete what was in Google Analytics.

11   The sWAA-off data is saved in a number of logs; correct?

12 A.   It -- it's saved in the logs and then processed and stored

13 in Google Analytics.

14 Q.   That's what I'm asking.

15   The -- there are a number of logs in Google Analytics that

16 contain either sWAA-off data or the results of sWAA-off data;

17 correct?

18 A.   I wouldn't -- I don't know about logs, but there are

19 tables of data to support Google Analytics where sWAA-off data

20 may be.

21 Q.   Well, are there also logs?

22 A.   Yes.

23 Q.   Okay. Now, are there logs outside of Google Analytics

24 that also contain sWAA-off data?

25 A.   SWAA-off data from Google Analytics?

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1   **Q.**   Let me start with that.

2   **A.**   For conversion measurement.

3   **Q.**   Okay.

4   **A.**   I'm not sure if they're logs; but for the purposes of

5   conversion measurement, this data that Google Analytics sends

6   to ads is presumably stored over there for that purpose.

7   **Q.**   Now, in addition to the sWAA-off data that comes from

8   Google Analytics, are there other places in Google, outside of

9   Google Analytics, that have this sWAA-off data?

10   **A.**   I'm not an expert on those other areas of Google.

11   **Q.**   Did you try to find that out before testifying here?

12   **A.**   I don't recall.

13   **THE COURT:** I think we've reached the 1:30 point.

14   Members of the jury, we've come the end of the day.

15   Remember my admonitions. Do not discuss this with anyone or

16   amongst yourselves. Do no research, nothing associated with

17   the case. Put it aside. Enjoy the rest of the day, and we'll

18   see you tomorrow at 8:30.

19   (Proceedings were heard out of the presence of the jury.)

20   **THE COURT:** Okay. We're out of the presence of the

21   jury.

22   What's the roster for tomorrow?

23   **MR. DAVID BOIES:** For once, I don't have to answer,

24   Your Honor.

25   (Laughter)

1   copy of the data in memory. Can you explain what you mean by

2   "in memory"?

3   A.   What I mean is in short-term memory in the computer as

4   opposed to as a file on the disk or in a log.

5   Q.   And why is that a significant distinction to you, the

6   difference between in memory or saved to disk?

7   A.   Well, the user expectation with sWAA is that it governs

8   the saving of their Web & App Activity specifically to their

9   Google Account, and that's not what's happening when you copy

10   this data in short-term memory for the purposes of looking up

11   the consent.

12   Q.   Do you -- just to be clear, do you consider making a copy

13   in short-term memory a form of saving?

14   A.   No.

15   Q.   And just explain why not.

16   A.   It's just when you -- for those who do computer science,

17   in order to make these API calls, the data needs to be in

18   memory. It's just, in the course of looking up the consent

19   status, it's something you would have to do.

20   Q.   While it's in -- how long is it in short-term memory for?

21   A.   No more than a few minutes.

22   Q.   And while it's in short-term memory, while the server is

23   checking for consent, let's say the power goes out. What would

24   happen to the data?

25   A.   It would disappear.

1   Q.   So -- and I just want to clarify one thing. I got a note

2   here to make sure to clarify, Mr. Ganem.

3   When you said that the Doritos cookie goes to the server

4   and that it can send a GAIA back if sWAA is on, can you just

5   remind us what you mean when you say "GAIA"?

6   A.   GAIA is the identifier associated with a Google Account.

7   Q.   So do you consider that GAIA identifier to be a personal

8   identifier?

9   A.   Yes.

10   Q.   Okay. You were asked --

11   MR. SANTACANA: We can take that down. Thank you,

12   Brooklyn.

13   BY MR. SANTACANA:

14   Q.   You were asked yesterday about the deletion of data. Do

15   you remember that?

16   A.   You'll have to refresh my memory.

17   Q.   Well, I believe the question was something along the lines

18   of: Does Google allow end users to delete the de-identified

19   data that came from their devices?

20   Do you remember that?

21   A.   Yes.

22   Q.   And can you just remind us your answer?

23   A.   Google does not. The My Activity control that we offer

24   only allows them to delete the data associated with their

25   Google Account.

1   **Q.**   Now, I just want to think about this for a moment,

2   Mr. Ganem. What would it take if you wanted to give end users

3   the ability to delete de-identified data that came from their

4   devices?

5   **A.**   Well, the first thing you'd have to do is reidentify them

6   so that when they submit this request, you would know -- you

7   would then know what data is associated with them.

8   **Q.**   Does Google have, right now, as far as you know, the

9   technology built to reidentify users whose data is

10   de-identified?

11   **A.**   No, it doesn't. In fact, we -- our designs are such that

12   that's technically impossible.

13   **Q.**   Is that part of, for example, why those servers are

14   separated?

15   **A.**   That's right.

16   **Q.**   Are there other technical barriers to reidentifying

17   de-identified data at Google?

18   **A.**   Yes.

19   **Q.**   Can you give us some examples?

20   **A.**   So, for example, Google Analytics does not log or store

21   the full IP address. It removes about a quarter of the

22   information before any of that information is stored.

23   Another would be that as timestamps come in, we modify

24   these, adding random numbers to jitter them so that they can't

25   possibly be personally identifiable.

1 same device that later downloaded the app in Step 3?

2 **A.**   The AdId in Step 1 would need to match the AdId in Step 3.

3 **Q.**   Can the download of the app occur days or even weeks after

4 the ad is clicked?

5 **A.**   Yes.

6 **Q.**   And Google doesn't get paid anything extra for that

7 download; right?

8 **A.**   No.

9 **Q.**   Tell us about these companies that are on the far right

10 under "Conversion Measurement." Who are these entities?

11 **A.**   Yeah. So you can see some conversion tools that

12 advertisers can use to understand what is happening within

13 their app. The first two, one's called AppsFlyer; one's called

14 Kochava. They're very common app measurement tools that are

15 used. And then there's also Google Analytics, which is

16 provided by Google as a free tool for advertisers to use.

17 **Q.**   So as you understand it, Google Analytics both can help

18 apps understand what's happening on their apps -- right?

19 **A.**   Correct.

20 **Q.**   -- and it can also help apps measure the effectiveness of

21 their advertising --

22 **A.**   Correct.

23 **Q.**   -- is that correct?

24   What do the app advertisers, so the Nike in your example,

25 what do they see when any of these three conversion measurement

1 companies tell them about conversion measurement?

2 **A.**   Yeah.   I can speak best to, obviously, the Google tools.

3 So in Google, the advertiser would see an aggregated report of

4 how many of the conversions that they care about happened.

5 Right?   So they would see how many downloads happened in an

6 aggregate number.

7 **Q.**   Do the app advertisers, so the Nike in this example, do

8 they see individually identifiable information about a

9 conversion?

10 **A.**   No.

11 **Q.**   Can -- can Google measure conversions on iPhones?

12 **A.**   Yes, pending the user settings.

13 **Q.**   Okay.   And I think you said that the iPhone identifier

14 is called IDFA; is that right?

15 **A.**   Correct.

16 **Q.**   And are there certain instances when Google cannot see the

17 IDFA?

18 **A.**   Yes.   In the Apple -- or in the iPhones, there is

19 something called ATT prompt or App Tracking Transparency

20 prompt.   This is a prompt that is shown to you the first time

21 you open the app if the developer wants to be able to access

22 IDFA.   And as a user, you have a choice to say that you would

23 like the app to track you, or you could also tell the app that

24 you do not want them to track you.

25 **Q.**   Now, what happens if the user selects "Ask app not to

1   track"?

2   **A.**   In the case where the user might select "Ask app not to

3   track," Google and the developer would not be able to access

4   the IDFA.

5   **Q.**   So let's go back to our example here. If that setting is

6   set to ask not to track, can Google determine whether the ad

7   that's clicked in Step 1 leads to a download in Step 3 on that

8   device?

9   **A.**   No, not on that device.

10   **Q.**   Does Google also offer the ability for users to opt out of

11   sharing their AdId?

12   **A.**   Yes. There is a setting on Android devices called

13   "Opt out of ad personalization."

14   **Q.**   And if this O -- do you call it OOAP -- OOOAP?

15   **A.**   OOOAP, yeah. Lots of Os.

16   **Q.**   Okay.

17   **MR. HUR:** Sorry. Can we put that back up, please.

18   **BY MR. HUR:**

19   **Q.**   So if OOOAP is set to enabled, can Google determine, on an

20   Android phone, whether or not the ad that's clicked in Step 1

21   is the same -- is the same device that downloaded the app in

22   Step 3?

23   **A.**   No.

24   **Q.**   Ms. Langner, are you familiar with a term called

25   "conversion modeling"?

1 A.   Yes.

2 Q.   What is conversion modeling?

3 A.   Conversion modeling is a method using statistics to

4 basically make an educated guess on what might happen if we are

5 not able to conversion -- do conversion measurement.

6 Q.   Why does Google need to make an educated guess when

7 conversion modeling?

8 A.   There are times and instances where Google would not be

9 able to determine at the device level -- right? -- if an ad

10 click led to a download of an app, so we would make an educated

11 guess to help advertisers understand how effective their ads

12 are holistically.

13 Q.   And can Google use past conversion data to help inform the

14 model for conversions?

15 A.   Correct.

16 Q.   Do you believe that conversion modeling is -- respects

17 user privacy?

18 A.   Yes.

19 Q.   Why is that?

20 A.   There is -- we're basically using prior information that

21 we understand to make an educated guess. We're not linking

22 back to a user in any specific way.

23   MR. HUR: Can we go back to G0100.

24 BY MR. HUR:

25 Q.   Ms. Langner, we were talking about this slide earlier in

LANGNER - CROSS / DAVID BOIES

1 **Q.**   I'm talking about sWAA-off data, not sWAA-on data.

2 SWAA-off data. Do you understand that?

3 **A.**   Correct.

4 **Q.**   Okay. Now, does Google use sWAA-off data for any purpose?

5 **A.**   We use sWAA-off data for measurement with de-identified

6 data.

7 **Q.**   When you say "measurement," are you talking about

8 conversion measurement?

9 **A.**   Correct, conversion measurement.

10 **Q.**   Okay. So you're using sWAA-off data for conversion

11 measurement. Is that your testimony?

12 **A.**   We use de-identified data for conversion measurement, yes.

13 **Q.**   And that's sWAA-off, what you call de-identified data;

14 correct?

15 **A.**   Correct.

16 **Q.**   Okay. Now, is it fair to say that there's some value to

17 Google of using this sWAA-off data?

18 **A.**   It's valuable to show -- for Google to show how our ads

19 are performing.

20 **Q.**   Okay. And do you have an estimate of how much value is

21 created for Google by having this sWAA-off data?

22 **A.**   I've never measured that, Mr. Boies.

23 **Q.**   Have you tried to?

24 **A.**   To the best of my knowledge, we have not tried to measure

25 the value of sWAA-off data.

LANGNER - CROSS / DAVID BOIES

1   Q.   Do you have any estimate at all, as you sit here now?

2   A.   No, not right now.

3   Q.   Could it be a billion dollars? Could it be $10 billion?

4   A.   I mean, you're throwing out some big numbers, Mr. Boies.

5   I don't know right now.

6   Q.   Okay. Now, you talked about conversion modeling. Do you

7   recall that?

8   A.   Correct.

9   Q.   And that's where you don't have something that directly

10   ties a device that showed the ad to a device that did the

11   conversion event; correct?

12   A.   Correct.

13   Q.   And what you do is you use a variety of modeling

14   techniques to try to tie those two devices together, even

15   though you don't have a specific identification; correct?

16   A.   Correct.

17   Q.   And you said that AdId and IDFA were not tied to any

18   particular person; correct?

19   A.   Correct.

20   Q.   But they are tied to particular devices; correct?

21   A.   Correct.

22   Q.   And Google knows what particular device belongs to what

23   particular person; correct?

24   A.   We do not try to identify a user's GAIA account with a

25   device ID.

1   Q.   I didn't ask whether you tried to do that.

2   But Google knows what devices particular people are using;

3   correct? They know that from the account and from the sign-in

4   and from all of the information that you have; right?

5   A.   We don't log that -- the information together, so I would

6   not be able to say if a device ID was owned by a specific user

7   unless I had access to their device.

8   Q.   But if you have the device ID, if you have the AdId or the

9   IDFA, Google knows what device everybody who is a Google user

10 is using; correct?

11 A.   If you only gave me a device identifier, our systems have

12 no -- there's no way for me to go through our systems, to the

13 best of my knowledge, to find your Google Account information.

14 We have policies that keep that in place. We also have code

15 that prevents people from trying to merge a GAIA account or a

16 Google Account with the AdId or the IDFA.

17 Q.   My question is not what policies or procedures or designs

18 you've set up.

19   Google knows -- for its users, they know a name, they know

20 an email address, and they know what email address is using

21 what particular device. You know that; right? Google know --

22 I didn't mean you personally, but Google knows that; correct?

23 A.   I can't agree to that statement, Mr. Boies.

24 Q.   You don't know that? Is that your testimony?

25 A.   I am saying that I cannot agree that Google knows that

1   identity. Your Google Account is like your janedoe@gmail.com.

2   So you can go into My Activity, you can see all the searches

3   and stuff you've done and things like that, and you can delete

4   them if you want, and it's a transparency option.

5   So when WAA is off, data is not saved to your

6   Google Account, your janedoe@gmail.com. It's -- it doesn't

7   mean it's not saved. If it's not saved to your account, it's

8   not saved to your identity; right? So it's de-identified and

9   stored that way so Google can do ad revenue and all this other

10   stuff. So that was with the WAA off.

11   So the change was, which I was very upset about, was: Oh,

12   we're going to change it so instead of de-identifying it, we're

13   going to keep it identified and store it for a temporary period

14   of time, 60 days, and then delete it so that they can do some

15   other things around some other issues with WAA.

16   And I go: That would be very bad because now WAA off is

17   the same as WAA on for 60 days. You're storing the data

18   identified to the user, to their janedoe@gmail.com account, yet

19   they can't see this data. So that would be very bad.

20   And I go: You can't do that. Right? So you have to

21   de-identify the data if that WAA is off. You can't have WAA

22   off and store identifiable data to the Google -- you know, the

23   user's account.

24   Q.   So back in July 24th of 2019, you understood what the word

25   "de-identified" meant; correct?

1   A.   Yes. And it says in here, I reference de-identified.

2   Q.   Okay. So you go on, then, to say --

3   MR. CARMODY: So before we go on, so to see what we

4   just said, would you circle the word "or"?

5   BY MR. CARMODY:

6   Q.   [As read]:

7   "But that is not what is done today or what is

8   proposed going forward."

9   A.   Right.

10   Q.   And so it looks like we have two separate thoughts by you;

11   correct?

12   A.   Correct. It appears that way.

13   Q.   Okay. Then you go on to say [as read]:

14   "The line 'Ads you click on, or things you buy

15   on an advertiser's site' we probably don't want to

16   lose ever as that is how we charge for Ads."

17   And you have a little smiley face. Do you see that?

18   A.   Yeah. We don't want to go out of business.

19   Q.   So you have here your -- again, this is a bullet that

20   you've taken from the WAA help page; correct?

21   A.   What's the bullet? Oh, "Ads you click on, or things you

22   do on an advertiser's site."

23   Q.   Yes.

24   A.   Yes.

25   Q.   Okay. And when you talk about -- the word "we" is

1   referring to Google; correct?

2   A.   Mm-hmm, correct.

3   Q.   And how we charge for ads is how Google makes money;

4   correct?

5   A.   One way they make money, yes, correct.

6   Q.   How they make money with -- when users turn off their WAA

7   button; correct?

8   A.   They make money when users have their WAA button on too.

9   Q.   I get that.

10   A.   Either way.

11   Q.   Either way, WAA on or WAA off, Google makes money from it;

12   correct?

13   A.   Correct.

14   Q.   Okay. So now we -- let's go down below. See where it

15   starts with "So, it appears"? You write [as read]:

16   "So, it appears we have a real problem here with

17   accurately describing what happens when WAA is

18   disabled."

19   Referring to when WAA is off; correct?

20   A.   In the context of the change -- of the WAA-off change,

21   yes.

22   Q.   No, forget in the context of the change because we're

23   going to get to that in the next sentence.

24   This first sentence refers to your thoughts at the time,

25   your concerns back in July 24th of '19 about the accuracy of

1   the WAA help page; fair?

2   **A.**   In terms of describing what happens when the WAA-off

3   change is implemented.

4   **Q.**   Well, let's see that, sir. The next sentence says

5   [as read]:

6   "We should fix the current wording to reflect

7   reality...."

8   Do you see that?

9   **A.**   Yes.

10 **Q.**   And then it has "and" --

11   **MR. CARMODY:** And maybe you need to circle the word

12 "and."

13 **BY MR. CARMODY:**

14 **Q.**   [As read]:

15   "... and if we make the change to temp GAIA

16   logging, then we need to be very clear about what

17   data is collected with WAA off."

18   Did I read that accurately?

19 **A.**   Yes.

20 **Q.**   So before the word "and," it looks like -- and "the

21 current wording" -- let me go back to "the current wording"

22 because that was your word at the time; correct?

23 **A.**   Well, this is my email at the time, yes.

24 **Q.**   Yes.

25 **A.**   Yeah.

1   Q.   And Google -- it's not personal to the user. Is that what

2   you're saying?

3   A.   It's not associated with the user anymore, right.

4   Q.   It's not personal information?

5   A.   I don't know about that.

6   Q.   Is it personal or not?

7   A.   It's no longer associated with an individual.

8   Q.   So is it the user's personal information or is it not?

9   A.   It can't be, by definition, because it's no longer

10 associated with the user.

11 Q.   Bingo.

12   Take a look at 67, Plaintiffs' Exhibit 67. It's in

13 evidence.

14   MS. AGNOLUCCI: Counsel, may I have a copy, please?

15 It's not in my binder.

16   MR. CARMODY: Of course.

17   (Pause in proceedings.)

18 BY MR. CARMODY:

19 Q.   What we're looking at, sir -- let me wait.

20   MR. CARMODY: Did you get it, Counsel?

21   MS. AGNOLUCCI: I did not.

22   MR. CARMODY: I just did this on the fly. I'm sorry.

23 We don't have a hard copy. Also, I'll --

24   THE COURT: This was admitted; correct?

25   MR. CARMODY: It's been admitted, oh, yeah.

 1   THE COURT: All right.

 2   MR. CARMODY: I didn't plan on using it.

 3   THE COURT: Well, then you see it on the screen. Go

 4   ahead.

 5   MR. CARMODY: Okay.

 6   BY MR. CARMODY:

 7   Q.   So Plaintiffs' Exhibit 67 is one of Google's privacy

 8   policies; correct?

 9   A.   Yes. This privacy policy is meant to help you understand,

10   yeah.

11   Q.   And it's effective July 1st of 2020; correct?

12   A.   Yep.

13   Q.   And this is while you're working at Google; correct?

14   A.   Correct.

15   Q.   And writing the emails we've seen?

16   A.   Yeah.

17   Q.   Turn to page 16. We take a look at page 16, what we see

18   here is Google identifies right in the middle -- I'm sorry,

19   Mr. Boles, right in the middle -- Google itself defines the

20   personal information it collects. Do you see that?

21   A.   Yes.

22   Q.   Okay. What Google defines as personal, the very first

23   thing is [as read]:

24   "Identifiers, such as your name, phone number,

25   and address, as well as unique identifiers to the

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1   device you're using."

2   Do you see that, sir?

3   A.   Yes.

4   Q.   You've told us that this WAA-off -- well, you understand,

5   I hope, that this WAA-off data contains the user's unique

6   device identifier; correct?

7   A.   I don't know that. I don't work on WAA.

8   Q.   Okay. You don't know that Google collects the unique

9   device identifier for everybody who turns the WAA button off?

10   A.   No, I don't.

11   Q.   Okay. And I'm guessing, then, before today, you didn't

12   know that Google defined that as personal information to the

13   user; correct?

14   A.   Correct.

15   MR. CARMODY: Okay. I'll pass, Your Honor.

16   MS. AGNOLUCCI: No further questions, Your Honor.

17   Thank you.

18   THE COURT: You may step down.

19   THE WITNESS: Okay. Thank you.

20   (Witness excused.)

21   MR. HUR: Your Honor, Google calls -- oh, should we do

22   a sidebar, Your Honor?

23   THE COURT: Well, do you want to go to the side?

24   MR. HUR: Yes. Thank you.

25   THE COURT: And also, were you going to move in

1   some -- Mr. Carmody, were you moving in some items?

2   MR. CARMODY: Yes.

3   THE COURT: Okay.

4   MR. CARMODY: What I wanted to do, Your Honor, is --

5   should I say it in front of the Court?

6   THE COURT: Yes.

7   MR. CARMODY: We are going to rest, subject to

8   admitting the exhibits we talked about.

9   THE COURT: All right. And so the record was clear, I

10   did -- I said they were admitted; correct?

11   MR. HUR: Your Honor, we had agreed that we would talk

12   to the other side and make sure we're aligned on which of them,

13   but we understand that they're not resting until they're in.

14   THE COURT: I see. You're still working on the list.

15   MR. HUR: Yes, Your Honor.

16   THE COURT: Okay. Fine.

17   Do you want to go to the side?

18   MR. HUR: Yes, Your Honor.

19   THE COURT: And we will need you, Ana.

20   (The following proceedings were heard at the sidebar:)

21   MR. PATCHEN: Jonathan Patchen, Cooley, on behalf of

22   Google.

23   Good morning, Your Honor.

24   Google moves pursuant to Rule 50(a) for JMOL on all of the

25   plaintiffs' claims, CDAFA, intrusion upon seclusion, and

1   protects it.

2   And so we've heard testimony about an encrypted GAIA. So

3   here your GAIA is sensitive. It links to your identity, but

4   we -- when Google encrypts it, then they need not worry about

5   it being exposed because even if a bad guy got ahold of it, it

6   wouldn't be useful.

7   The one that's been named is called the DSID, and I think

8   Mr. Ganem said that's called -- internally it's called the

9   Doritos identifier, and so I think it's easy to remember and

10 that's why I have a chip on my slide.

11 **BY MR. SANTACANA:**

12 **Q.**   In computer science, what is the purpose of encrypting a

13 personal identifier?

14 **A.**   You encrypt it in order make sure that no one can

15 understand what the actual value of the identifier is.

16 **Q.**   So in this case, when the jury goes to consider the

17 evidence, how can they tell, when they're looking at the

18 evidence, whether a particular identifier is personal or

19 pseudonymous?

20 **A.**   They would have to ask themselves: Is this something that

21 is linked to the person's identity or just is the person's

22 identity? Or if it's something that is set aside, is separate,

23 and is not tied to any personal identifiers.

24 **Q.**   Okay. Can you please explain to the jury what you've done

25 here?

1   **A.**   Yeah.   This is the trip of the Doritos.   It's pretty cool,

2   actually.   So, once again, when a user is using a third-party

3   app with GA4F and he does something, presses a button or

4   sometimes does nothing and just is engaged, sits on a screen

5   for a few seconds, it generates what's called an event.   And

6   these events are packaged up by the SDK and then transmitted to

7   Google's servers from that device.

8   **Q.**   What else is packaged up there?

9   **A.**   Okay.   So this is meant to show what's inside that bundle,

10   event data, the kind of event.   Is it that, you know, someone's

11   first opening the app for the first time; they're showing a

12   certain screen; they've clicked on a button?   Those can be

13   events that are captured and sent.

14   And then the DSID, that's the Doritos, that's the GAIA

15   which is tied to the user's identity but it's encrypted.   So

16   even if somebody got ahold of it, it would be meaningless

17   essentially.

18   And then there's the AdId, that's the advertising ID for

19   Android, and the App Instance ID, which Mr. Ganem explained was

20   an identifier that was generated for that install of that app

21   on that device.

22   And then there's some user properties, which I'll talk

23   about in a second.

24   **Q.**   So if I were to get ahold of this number one bundle of

25   data, would I be able to determine whose Google Account the

1 data belongs to?

2 **A.**   No.   I assume you don't have -- this is not your phone, so

3 you wouldn't be able to link the AdId to the GAIA, even though

4 you have both, because the GAIA is encrypted and that makes it

5 undiscernible.

6 **Q.**   Let's move forward.

7   Can you just explain what's going on here?

8 **A.**   Right.   So I have this animation to show what's going on

9 after the packet is transmitted from the phone, over the

10 Internet, to Google's analytic server.   It's received by one of

11 the computers in this rack diagram.

12 **Q.**   Professor Black, we've heard the plaintiffs say a number

13 of times that Google takes analytics data from users' phones.

14 From your perspective as a computer scientist, is Google taking

15 the data from the user's phone?

16 **A.**   I don't think I'd phrase it that way.   That kind of evokes

17 this image that the server is going out and seizing things from

18 the phones.   And the server is passively just sitting there,

19 waiting for information to come in.   Just like -- you know, I'm

20 old enough that I used to send mail using a letter and drop it

21 in a mailbox.   And I'd go to the mailbox and put it in the

22 slot.   I would never describe that as the mailbox is out taking

23 people's letters.   It's just receiving letters that are being

24 sent or deposited into it.

25 **Q.**   Which person or entity is responsible for causing the data

1   accredited by the Media Rating Council. They go through an

2   audit at least once a year. They need to have the receipts to

3   show. So both for fraud prevention and accreditation, they

4   need to collect data. You can't stop the bad guys if you're

5   not even allowed to look at what they're doing.

6   The third thing we've also heard about is conversion

7   measurement attribution. That's something that the advertisers

8   are interested in.

9   And then, finally, the last one, which we've heard about

10   for the full two weeks, that's the sWAA button. If you don't

11   want personalized content, you can turn that off.

12   Q.   So, Professor, do end users have any way -- are you aware

13   of any way they can turn off analytics?

14   A.   Analytics is an agreement between the user and the app.

15   They have to agree they're going to be sending this information

16   to Google or not. Some apps let you partly opt out. Some apps

17   have a button that says -- for the user to click that says,

18   "Don't send analytics. I don't want it." But that's between

19   the user and the app. Google, once again, is passively

20   receiving whatever analytics comes its way as a service to the

21   app and its user.

22   Q.   Professor, I don't -- you're not an expert in agreements

23   or contracts; right?

24   A.   No.

25   Q.   So let's stay away from that language.

1   I just want to understand, as a technical matter -- well,

2   let me put it this way: Does Google Analytics provide code for

3   apps to put analytics opt outs in their apps?

4   A.   They do.

5   Q.   So the Google Analytics for Firebase code permits apps to

6   program an opt out of the analytics sending?

7   A.   That's right. There's an option in the analytics SDK to

8   say, "If the user opts out, don't send the analytics data."

9   Q.   What about fraud? Are you aware of any buttons made

10 available to Google users to prevent the prevention of fraud?

11 A.   Obviously we don't want a "turn off fraud detection"

12 button anywhere because if fraudsters get away with what

13 they're doing, that harms all of us. So that's not something

14 you can turn off.

15 Q.   Is there a button end users can do to opt out of

16 conversion and attribution?

17 A.   There is.   On Android it's called -- this was briefly

18 mentioned, it's called OOOAP. It stands for opt out of ads

19 personalization. It zeros out your AdId, your device ID. On

20 Apple, it's called LAT, limit ad tracking. That zeros out the

21 IDFA.

22   So, in essence, either of those, it's device level, it's

23 not account level, unlike sWAA, and it disables conversion

24 tracking based on device ID. Obviously, there's different ways

25 you could also still do conversion tracking.

1   Q.   Let's move on, sir, to your final opinion here.

2   Can you just explain to the jury, or summarize, I should

3   say, your final opinion?

4   A.   Sure.

5   So I'm saying that Google does not profit from the

6   sWAA-off data. This is to say that measuring conversions,

7   there's no charge for that step. The charge in ad campaigns is

8   made from, like, showing ads or getting a click on an ad; but

9   measuring the conversion, which is saying, "Where is that user

10   journey, where is it coming from," that's something that Google

11   doesn't charge for.

12   Q.   Sir, did you do any work in this case to understand what

13   other options there are in the market for apps to measure

14   conversions if Google weren't able to do it?

15   A.   I did. In my report I surveyed a number of different

16   third-party services that do similar things that also do ad

17   measure- -- conversion measurement or attribution, and there

18   are plenty of other ones. AppsFlyer's been mentioned.

19   Kochava, I believe, was mentioned. There are a bunch of other

20   options.

21   Q.   Can you explain what's on this slide?

22   A.   Yeah. This is AppsFlyer. I think Mr. Ganem said this was

23   the number one conversion measurement product out there. It

24   has advantages over Google. It can -- it can work over more

25   than just Google's network. It can go over TikTok's network or

1   Meta's network. And it uses a variety of techniques to do

2   conversions.

3   And what I'm highlighting here is there's a third box that

4   says, "Probabilistic modeling." And for AppsFlyer, what that

5   means is they're doing something in a privacy gray area, which

6   is called fingerprinting. So they're using, like, "I know your

7   device ID" -- I'm sorry -- "I know your device model number,

8   the language, the time zone, the other things about your

9   device, and so I can build a profile to track you from what's

10   called your fingerprint." That's a no-no for Google, as,

11   obviously, we've heard. They do not do that. There's a policy

12   against it.

13   AppsFlyer is not quite as aggressive about protecting user

14   privacy, so they do these things that are a little bit gray.

15   Q.   Okay. And, finally, Professor Black, can you explain how

16   the App Tracking Transparency regime that came in in 2021 on

17   iPhones, how does that impact the measuring of conversions by

18   Google?

19   A.   My understanding is many, if not nearly all, people will

20   click on "Ask app not to track." The ad industry was like, "We

21   can't use IDFA anymore. We have to use something else."

22   This is a picture of Apple's in-device conversion

23   measurement for what's called SKAdNetwork. There are other

24   ways to do it. Even if you can't use sWAA-off data to measure

25   conversions, there are other techniques that are out there.

BLACK - DIRECT / SANTACANA

1   This is one example.

2   **Q.**   Since 2021, has Google been using the raw analytics data

3   we've been talking about throughout this trial to measure

4   conversions on iOS?

5   **A.**   I don't think so.   Sorry.

6   **Q.**   No.   And I should clarify my question.

7   My question -- a caveat to the question is if the user has

8   asked the app not to track.

9   **A.**   Thank you.   Yeah, I needed that piece.

10   If there's no IDFA, then there's no way to track the

11   device using the device ID because it's missing, so you can't

12   measure conversions that way.

13   **Q.**   In that instance, is Google able to model conversions?

14   **A.**   Yeah.   They can use conversion modeling, which is a whole

15   other topic.   But, briefly, you can build a model based on

16   sWAA-on data -- and this is like machine learning, like ChatGPT

17   kind of AI technology -- to tell you if you get a batch of

18   sWAA-off data, roughly what percentage of those are conversions

19   based on an ad campaign even though you don't know for sure.

20   **Q.**   Did Dr. Hochman identify any evidence that Google built

21   these models with sWAA-off data?

22   **A.**   I've read his report several times.   I don't believe he

23   provided any such evidence.

24   **Q.**   Okay.   And my final question, Professor Black: Did you

25   see any evidence in Dr. Hochman's report or anyone -- anywhere

1   else measuring the impact of Google Analytics on batteries and

2   whether or not that impact is anything greater than minimal?

3   A.   No, I did not.

4   Q.   I have no further questions, sir.

5   A.   Thank you.

6   THE COURT: Mr. Boies.

7   MR. DAVID BOIES: Thank you, Your Honor.

8   CROSS-EXAMINATION

9   BY MR. DAVID BOIES:

10   Q.   Good morning, Dr. Black.

11   A.   Good morning, sir.

12   Q.   We haven't met, but my name is David Boies. You

13   understand I represent the plaintiffs?

14   A.   I do.

15   Q.   Let me begin with what you were talking about in terms of

16   conversions.

17   Is it your understanding that Google uses sWAA-off data

18   for conversion purposes?

19   A.   In certain cases. We just described an instance where it

20   can't, but --

21   Q.   Where it can or can't?

22   A.   In certain cases it cannot, but in certain cases it can.

23   Q.   Okay. Now, just to orient ourselves, because we're using

24   a lot of acronyms here, I'll put up our Demonstrative Exhibit

25   Number 1.

1   We've been talking about sWAA as a user's third-party

2   Web & App Activity. Is that the way you understand sWAA?

3   A.   Only because of this lawsuit. I never heard the word.

4   That's an internal Google term.

5   Q.   But in terms of your work, do you understand that that is

6   the way Google uses it?

7   A.   Correct.

8   Q.   Okay. And sWAA data is data from a user's third-party

9   Web & App Activity, correct, as Google uses the term?

10 A.   I don't know that I've heard "sWAA data." I've heard

11 "sWAA-on data" and "sWAA-off data."

12 Q.   Okay.

13 A.   Maybe -- you can pull them together maybe.

14 Q.   Yes. I would have thought sWAA data was sWAA off and sWAA

15 on combined; but if you don't know that, we'll go on.

16   SWAA-off data is data from a user's third-party Web & App

17 Activity and it's collected while the sWAA control is off;

18 fair?

19 A.   Agreed.

20 Q.   Okay. Now, you understand, and I think we're in

21 agreement, that whether sWAA is on or off, Google initially

22 collects and copies the same data from a person's use of

23 third-party apps; correct?

24 A.   The same data is transmitted from the app regardless of

25 whether sWAA is on or off and it's sent to Google.

1   Q.   Sent to Google. And when it comes in, Google makes a copy

2   of that; correct, sir?

3   A.   I mean, I said on direct, technically, when it moves data,

4   that does create a copy.

5   Q.   It does make a copy?

6   A.   It's inherent in how computers operate, so yes.

7   Q.   And that initial copy has all of the personal identifiers

8   in it; correct?

9   A.   Could you clarify "personal identifiers"?

10 Q.   In your work, did you talk with Google about personal

11 identifiers?

12 A.   Would you include counsel when you say I spoke to Google?

13 Q.   Well, let's talk about Google other than their counsel

14 first.

15 A.   Okay. I spoke only to Mr. Ganem prior to writing my

16 report.

17 Q.   Okay.

18   MR. DAVID BOIES: Now, perhaps we can put up, just for

19 the witness, Mr. Ganem's testimony at 1206, lines 13 to 16.

20 Let's make it 13 to 20.

21 BY MR. DAVID BOIES:

22 Q.   Now, you see here, where Mr. Ganem testifies [as read]:

23   "QUESTION: When Google first receives the sWAA-off data

24   from the app" --

25   MR. SANTACANA: Objection, Your Honor. He's reading

PROCEEDINGS

1 | we can get all the closings in and then have the lunch break,

2 | that would be wonderful, but I -- that's fairly ambitious, but

3 | that would be good.

4 | In that regard, we may not take the lunch break until,

5 | like, 12:30 or even a little -- it would be nice to have ended

6 | all final instructions for me, lunch break, they start to

7 | deliberate or they say, "We're coming back tomorrow."

8 | **MR. HUR:** Yes, Your Honor, that would be our

9 | preference too. And presuming that the rebuttal is, you know,

10 | a reasonable length, that seems doable.

11 | **THE COURT:** Okay. Good.

12 | **MS. CORBO:** Your Honor, just one point of

13 | clarification on Google's Motion in Limine Number 19.

14 | With respect to the artificial intelligence point, I just

15 | want to clarify that any reference in plaintiffs' closing

16 | argument would be limited to machine learning for conversion

17 | modeling and not to Gemini or --

18 | **THE COURT:** Yes.

19 | **MS. CORBO:** -- generative AI.

20 | **MR. DAVID BOIES:** It is more than just for conversion.

21 | They were talking -- he talked about machine learning for a

22 | number of subjects. I'm not going to mention Gemini.

23 | **THE COURT:** All right. I'll take that.

24 | **MR. DAVID BOIES:** But he mentioned machine learning

25 | for a number of --

PROCEEDINGS

1   THE COURT: Not just conversion.

2   MS. CORBO: I believe that the testimony was limited

3   to --

4   THE COURT: I'm not arguing this. Really, we're not

5   going down this path. So, okay.

6   MS. CORBO: Thank you.

7   MS. BONN: And, Your Honor -- excuse me -- we have two

8   housekeeping issues.

9   One is, the party's reached an agreement on the

10 privacy-type policy documents to move in. So with the

11 stipulation, I'd like to read them into the record.

12   THE COURT: Yes.

13   MS. BONN: Plaintiffs offer Google privacy policy

14 Exhibit G0934.

15   Plaintiffs are about to offer a series of WAA help pages,

16 and the parties have agreed that I can read the following

17 language in [as read]:

18   "The parties have met and conferred and agreed

19   that these versions of the WAA help page constitute a

20   fair and accurate representative sample of the

21   versions of the WAA help page that were displayed to

22   users during the class period."

23   Plaintiffs offer PX91, PX93, PX94, PX99, PX101.

24   PX104 is already in evidence.

25   Plaintiffs offer PX105, PX106, PX107, PX108, PX111, PX112.

PROCEEDINGS

1   PX113 is already in evidence.

2   Plaintiffs offer PX114, PX115, G1003, PX117, G906, G930.

3   Plaintiffs also offer the following, which are the "How

4 Google uses information from sites and apps that use our

5 services" policy documents.   They are G982, G986.

6   PX123 is already admitted in evidence.

7   Plaintiffs offer G947, G952, G956, G959, G963, G967.

8   Plaintiffs offer the following Google Analytics for

9 Firebase/Google Analytics Terms of Service, Exhibit G933.

10   I think that's it.

11   **MS. FLOREZ:**   That's correct.

12 Argemira Florez with Cooley.

13   **THE COURT:**   Okay.   Those exhibits will be admitted.

14   (Trial Exhibits PX91, PX93, PX94, PX99, PX101, PX105,

15 PX106, PX107, PX108, PX111, PX112, PX114, PX115, PX117, G0934,

16 G1003, G0906, G0930, G0982, G0986, G0947, G0952, G0956, G0959,

17 G0963, G0967, and G0933 received in evidence.)

18   **MS. BONN:**   Thank you, Your Honor.

19   And then we've also prepared and marked for identification

20 as PX181 the clip report for the Miraglia deposition video clip

21 that was played in plaintiffs' rebuttal case, which we'd like

22 to provide the court reporter and have appended to the

23 transcript.

24   **THE COURT:**   Very well.   It'll be so marked and

25 appended to the transcript.

1   (Trial Exhibit PX181 marked for identification.)

2   **MS. BONN:** Okay. Thank you.

3   **THE COURT:** Okay.

4   **MR. DAVID BOIES:** Your Honor --

5   **THE COURT:** Yes.

6   **MR. DAVID BOIES:** -- I want to clarify just one thing.

7   I will not make any reference to Mr. Ganem's testimony

8   about subpoenas and the --

9   I will not make any reference to Mr. Ganem's testimony at

10   around 1243 about the subpoena and the woman in the abortion

11   state.

12   However, I do intend, unless the Court tells me not to, to

13   refer to his general testimony, not about subpoenas, but when I

14   asked him did he understand that people might be uncomfortable

15   with Google having this information, even though they said it

16   was unidentified. It seems to me that that is entirely

17   appropriate.

18   **THE COURT:** Yes, you can ask that. You can make those

19   statements.

20   **MR. DAVID BOIES:** Thank you, Your Honor.

21   **MS. CORBO:** Okay. I think that's fair.

22   **THE COURT:** Okay. So we'll see where they are, if

23   they're all here, and we'll get started as soon as we can.

24   **THE COURTROOM DEPUTY:** Court stands in brief recess.

25   (Recess taken at 8:19 a.m.)

1   Mr. Rodriguez and Mr. Santiago gave Google their device ID and

2   said it was theirs, swore under -- swore with the signing of a

3   document, saying it was their device. So, yes, if Google knows

4   the device and knows the name, and can put them together, then

5   they can get the data. That's why we had Mr. Rodriguez's and

6   Mr. Santiago's data.

7   But there is no evidence, zero, in this case that Google

8   did that for the class members. They only did it in the course

9   of litigation because it was asked for in discovery. Google

10   does not reidentify the data.

11   Professor Black, he agrees [as read]:

12   **"ANSWER:** I've seen no evidence that they reidentify

13   people."

14   97,992,376 class members; zero reidentifications.

15   Another myth you heard in this case is that Google

16   Analytics uses personally identifiable information. But you

17   know the facts. Google Analytics does not want or use PII.

18   And you don't have to take any witness's testimony for it.

19   You can look at the agreement that Google has with every app

20   developer. Every app developer is required to agree to this to

21   use Google Analytics. And what does Google say?

22   [As read]:

23   "You will not and will not assist or permit any

24   third party to pass information to Google that Google

25   could use or recognize as personally identifiable

1   information."

2   Sending PII is prohibited by the agreement that every app

3   reaches with Google Analytics for Firebase.   It's true that

4   some apps broke the rules and sent a minuscule amount of data

5   relating to Mr. Rodriguez.   Okay.   This isn't 33 percent.   This

6   is 0.33 percent of the apps sent Google -- broke the rules and

7   sent Mr. Rodriguez's name to Google.   0.34 percent broke the

8   rules and sent an email address for Mr. Rodriguez.

9   0.05 percent broke the rules and sent phone numbers.

10   But what else did you hear about this?   Mr. Ganem, the

11   head of Google Analytics, told you [as read]:

12   "Google does not use that information for

13   anything.   It's like putting your name in the

14   category for this type of burger or which burger is

15   most popular.   Google Analytics has no way of using

16   that information, and it is stored in the app's

17   locked apartment and not used."

18   What about location?   You heard Mr. Rodriguez, and

19   I believe Mr. Santiago, say that it's sensitive that Google has

20   my location information.

21   What did Dr. Hochman admit?   [As read]:

22   **ANSWER:**   So I just want to be clear.   I'm aware that the

23   latitude and longitude that Google eventually puts in the

24   logs may be city level; in other words, it may not be

25   precise.   I'm aware of that."

1   Members of the jury, if he knew it was precise, if he had

2 any evidence of that, of course he would have told you that,

3 but the evidence showed that it's just the city center.

4 Wherever someone is, it'll just go to the city center.

5   Susan Harvey, who didn't come to trial, lives in the

6 eastern part of California, and she had the same intersection

7 in Sacramento, the city center, listed 4,640 times. Okay?

8 Google is not getting the location of where these users are.

9   Battery loss. This is something that the plaintiffs have

10 thrown in. You know, you heard a question thrown in near

11 the -- as part of their exams about, "Oh, yeah, didn't it cost

12 battery too?"

13   Did their expert, Dr. Hochman, provide any evidence about

14 the battery loss?

15   [As read]:

16   **"QUESTION:** You did not document anything that you did to

17   measure the degree, if any, of battery degradation caused

18   by Google Analytics for Firebase?

19   **"ANSWER:** Correct.

20   **"QUESTION:** You have not disclosed to us any work that you

21   have done to try and measure the degree of battery

22   degradation, if any, caused by Google Analytics for

23   Firebase?

24   **"ANSWER:** I haven't disclosed that."

25   It is their burden to show damage and harm here. Their

1   and determine the sWAA-off status. And if it's off, they will

2   discard it. If it's on, then they will link it.

3   It is not credible that Google Analytics would not be able

4   to get any data because the consent check process, of course,

5   requires putting the data in temporary memory first. Okay?

6   That is not copying. That is like you're thinking of something

7   in your brain before writing it down.

8   Google doesn't do it on the device because, as Mr. Ganem

9   testified, that would be less secure and it would be less

10   accurate because the device setting may not have the user's

11   most updated setting. Google checks the consent in the most

12   secure and accurate way it can, and you did not hear any

13   testimony to the contrary.

14   Why would Google go to the trouble of storing the data in

15   each app separate apartment locker if it was just going to

16   treat the data the same?

17   You heard Mr. Ganem testify that when sWAA is on, these

18   puzzle pieces in the apartments, they can all go to the user's

19   Google Account and Google can put them together to serve

20   personalized ads; but when sWAA is off, they're kept in their

21   own individual apartments.

22   And the final myth is that Google didn't want users to

23   know about Google Analytics, even though Google told users and

24   required apps to do the same.

25   You saw it in this disclosure, the "Are you sure?" Right

1   at the time of having to choose to turn sWAA off, Google tells

2   users, "Learn about data Google continues to collect and why at

3   policies.google.com."

4   What about the one I started with at the very beginning of

5   the trial? Activity controls [as read]:

6   "The data saved in your account helps give you

7   more personalized experiences. Choose which settings

8   will save data in your Google Account. You control

9   what data gets saved to your Google Account."

10   Google tells users repeatedly what sWAA and WAA does and

11   what is saved, what they can and can't save to their

12   Google Account.

13   And then this: Every single app that uses

14   Google Analytics is required to tell every single one of their

15   users about Google Analytics and how it collects and uses data.

16   How could Google have intended to mislead about the

17   collection of data by Google Analytics if it required every

18   single app to tell every single one of their users?

19   So if you're a user and you have 50 apps, every single one

20   of those 50 apps was required to tell the user about

21   Google Analytics and how it collects data. How in the world --

22   even if Google wanted to mislead, how could they do that in

23   light of that disclosure?

24   Let's talk about the claims because plaintiffs cannot meet

25   the high standard of them. You heard Judge Seeborg read to you

1 this instruction about the burden of proof. And for the

2 claims, for the three claims at issue -- CDAFA, invasion of

3 privacy, and intrusion upon seclusion -- the plaintiff bears

4 the burden of proof. And what does that mean? That means if

5 you're back there in the jury room and, for some reason, you're

6 on the fence, you must find for Google. That's what the burden

7 of proof means.

8   Let's talk about the first claim, the Comprehensive

9 Computer Data and Access Fraud Act, sometimes referred to as

10 CDAFA.

11   Are plaintiffs owners or lessees of mobile devices or

12 data? Now, I concede that plaintiffs are owners of their

13 mobile devices, but they're not owners of their data. You

14 didn't see any evidence that they own that data. And think

15 about it. It's de-identified data not tied to who they are

16 that is given to the app. So if you make this case about data,

17 they have not proven the first element.

18   Second, Google knowingly accessed plaintiffs' mobile

19 devices or data. We've talked a lot about this. Google did

20 not knowingly access this data without permission. They

21 certainly thought they had permission. Google was not

22 intending to break into these devices and get data. Okay?

23 They had agreements with the apps for doing this. They did not

24 knowingly access plaintiffs' mobile devices or data.

25   Did Google take, copy, or make use of data from those